

1. BEGONIA Linnaeus, Sp. Pl. 2: 1056. 1753.

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Perennial succulent herbs, rarely subshrubs. Stem erect, frequently rhizomatous, or plants tuberous and either acaulescent or shortly stemmed, rarely lianoid or climbing with adventitious roots, or stoloniferous. Leaves simple, rarely palmately compound, alternate or all basal; blade often oblique and asymmetric, rarely symmetric, margin often irregularly serrate and divided, occasionally entire, venation usually palmate; petiole long, weak; stipules membranous, usually deciduous. Flowers unisexual, plants monoecious, rarely dioecious, (1 or)2–4 to several, rarely numerous, in dichotomous cymes, sometimes in panicle, with pedicels and bracts. Staminate flower: tepals 2 or 4 and decussate, usually outer ones larger, inner ones smaller; stamens usually numerous; filaments free or connate at base; anthers 2-celled, apical or lateral; connectives extended at apex, sometimes apiculate. Pistillate flower: tepals 2–5(–10); pistil composed of 2–5(–7) carpels; ovary inferior, 1–3(–7)-loculed; placentae axile or parietal; styles 2 or 3(or more), free or fused at base, forked once or more; stigma turgid, spirally twisted-tortuous or U-shaped, capitate or reniform, setose-papillose. Capsule dry, sometimes berrylike, unequally or subequally 3-winged, rarely wingless and 3- or 4-horned; seeds very numerous, pale brown, oblong, minute, testa reticulate.

More than 1400 species: widely distributed in the tropical and subtropical regions of the world, with ca. 150 species in Africa, more than 600 species in Central and South America, and more than 600 species in Asia; 173 species (141 endemic) in China.

Begonia species in China are mostly distributed S of the Chang Jiang, particularly concentrated in SE Yunnan and SW Guangxi, with only a few extending into N China.

The authors learned of two additional, recently described species as this volume was going to press. *Begonia guaniana* H. Ma & H. Z. Li (Ann. Bot. Fenn. 43: 466. 2006) was described from NE Yunnan (Yanjin), where it grows on moist cliffs under bamboo forest at ca. 500 m. Its chromosome number is $2n = 24^*$. It resembles *B. labordei*, especially in its tuberous, stemless habit. *Begonia coelocentroides* Y. M. Shui & Z. D. Wei (Acta Phytotax. Sin. 45: 86. 2007) was described from W Yunnan (Yingjiang), where it grows on cliffs often in forests or near streams at ca. 1300 m, flowering in August and fruiting in October. It resembles *B. oreodoxa* in having parietal placentae at the upper part of the ovary, differing mainly in the female flowers with 5 tepals and the largest wing of the capsule being 20–22 mm and ligulate.

The records of *Begonia balansana* Gagnepain from Guangxi and Yunnan in FRPS (52(1): 212. 1999) are possibly errors and require confirmation. The second author has seen no specimens from China that would substantiate these records. This species is believed to be endemic to N Vietnam. See also Tebbitt (Edinburgh J. Bot. 60: 1–9. 2003).

It can be difficult to key out the sections of *Begonia*, because sectional distinctions rely heavily on the placentation structure, which is either unavailable on specimens or difficult to analyse (many *Begonia* specimens are poorly prepared). Information on sections to which *Begonia* species belong may be desirable to specialists, although it should be noted that there are disagreements about the placement of some species. Please refer to Y. M. Shui, C.-I. Peng & C. Y. Wu, Synopsis of the Chinese species of *Begonia* (Begoniaceae), with a reappraisal of the sectional delimitation (Bot. Bull. Acad. Sin. 43: 313–327. 2002).

In China, all species are perennial herbs (rarely subshrubs). All species with basal tubers are described as deciduous, although living material is not available for all tuberous species. The aerial parts of the plants wilt in winter or in the dry season. Most species are monoecious with cymose, dichasial inflorescences. The inflorescences are usually protandrous (staminate flowers open before pistillate flowers) and gynaeandrous (staminate flowers basal and pistillate flowers distal).

Keys to species

- 1a. Leaf peltate Key 1
- 1b. Leaf not peltate.
 - 2a. Plant deciduous, tuberous (if rhizomatous, rhizomes moniliform).
 - 3a. Leaf mainly on elongate aerial stem or creeping moniliform rhizome Key 2
 - 3b. Leaf solitary, binary or several and fasciculate on tuber or on a very short stem, occasionally with 1(or 2) distinct cauline leaves Key 3
 - 2b. Plant evergreen, not tuberous.
 - 4a. Fruit fleshy, berrylike, indehiscent, wingless, sometimes horned or ridged Key 4
 - 4b. Fruit capsular, dehiscent, 3-winged.
 - 5a. Leaf compound or deeply lobed Key 5
 - 5b. Leaf unlobed to shallowly lobed (divided to no more than 1/3 of leaf length).
 - 6a. Leaf blade at least $2 \times$ as long as wide Key 6
 - 6b. Leaf blade less than $2 \times$ as long as wide.
 - 7a. Leaves mainly on aerial stem at anthesis (on rhizomes when sterile) Key 7
 - 7b. Leaves on well-developed rhizome or prostrate stem, cauline leaves lacking or 1 or 2(or 3).
 - 8a. Female tepals 3, rarely 2 or 4; middle cross-section of ovary with parietal or septal placentation Key 8
 - 8b. Female tepals 5, rarely 6 or more; middle cross-section of ovary with axile placentation (placentae parietal in *B. pseudodryadis*) Key 9

Key 1

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- 1a. Stem aerial, elongate, erect or ascending to pendulous, somewhat woody in appearance; leaves all cauline; blade lanceolate 147. *B. sinofloribunda*
- 1b. Stem rhizomatous or tuberous; leaves on rhizome or fasciculate, occasionally 1 and cauline; blade narrowly ovate to broadly ovate, broadly elliptic, or orbicular.
- 2a. Leaf distinctly denticulate or serrulate.
- 3a. Plant deciduous, tuberous; leaf solitary, shallowly lobed; inflorescence racemose at base, cymose above; placentae axile 75. *B. josephii*
- 3b. Plant evergreen, rhizomatous; leaves several, not divided; inflorescence dichotomous, cymose; placentae parietal.
- 4a. Leaf blade densely hairy.
- 5a. Leaf blade occasionally not peltate, without angular lobes; staminate tepals 4 161. *B. variifolia*
- 5b. Leaf blade consistently peltate, with 2- or 3-angular lobes; staminate tepals 2 or 4 7. *B. asteropyrifolia*
- 4b. Leaf blade sparsely to moderately hairy.
- 6a. Leaf venation spider-web like, tertiary veins percurrent, protruding on abaxial surface 160. *B. umbraculifolia*
- 6b. Leaf venation not as above, smaller veins randomly reticulate, fine, not protruding on abaxial surface 144. *B. setulosopeltata*
- 2b. Leaf blade entire or nearly so.
- 7a. Fruit descending or deflexed, indehiscent, berrylike, clavate, wingless 34. *B. cylindrica*
- 7b. Fruit nodding, dehiscent, capsular, 3-winged.
- 8a. Leaf blade broadly ovate to orbicular; abaxial wing of capsule triangular.
- 9a. Leaf blade glabrous, smooth, without white dots, thick, succulent; placentae axile 116. *B. peltatifolia*
- 9b. Leaf blade hispidulous, rugulose, with numerous white dots, papery; placentae parietal 144. *B. setulosopeltata*
- 8b. Leaf blade narrowly ovate, ovate, or broadly elliptic; abaxial wing of capsules lunate.
- 10a. Leaf blade abaxially red; tepals apically acute, both male and female tepals 2 164. *B. wangii*
- 10b. Leaf blade abaxially pale green; tepals apically obtuse, male tepals 4, female tepals 3.
- 11a. Leaf blade ovate or broadly elliptic; stipules reniform, apex emarginate or obtuse; petiole not swollen at base 18. *B. cavaleriei*
- 11b. Leaf blade narrowly ovate; stipules triangular, apex acuminate or cuspidate; petiole swollen at base 127. *B. pulvinifera*

Key 2

- 1a. Plant rhizomatous; capsules nodding; ovary 2-loculed.
- 2a. Leaf blade glabrous or subglabrous; female tepals 3(or 4), glabrous 11. *B. austrotaiwanensis*
- 2b. Leaf blade pubescent; female tepals 5, pubescent 55. *B. forrestii*
- 1b. Plant tuberous; capsules pendulous; ovary 3-loculed.
- 3a. Plant with many elongated stolons terminated by tubers 129. *B. ravenii*
- 3b. Plant without stolons; bulbils on aerial stem present or not.
- 4a. Herb usually 20–60 cm tall.
- 5a. Leaf blade narrowly triangular; bulbils absent; inflorescence protogynous; male flowers only on upper part of terminal inflorescence 101. *B. modestiflora*
- 5b. Leaf blade ovate to broadly ovate; bulbils at leaf axils on aerial stem in late growing season; inflorescence protandrous; flowers of both sexes mixed in inflorescence 58. *B. grandis*
- 4b. Herb to 20 cm tall.
- 6a. Leaves 1 or 2 57. *B. glechomifolia*
- 6b. Leaves many.
- 7a. Leaf blade 7–8 × ca. 6 cm; flowers larger, tepals ca. 8 mm 19. *B. cehengensis*
- 7b. Leaf blade 1–2.9 × 0.9–3.2 cm; flowers smaller, tepals to 4 mm 115. *B. peii*

Key 3

- 1a. Leaf blade divided to more than 1/2 of leaf length.
- 2a. Leaf blade distinctly hairy.
- 3a. Leaf lobes with lobules 156. *B. taliensis*
- 3b. Leaf lobes without lobules 73. *B. imitans*
- 2b. Leaf blade glabrous or nearly so.
- 4a. Petiole with red, linear dots; leaf lobes with lobules 140. *B. rubropunctata*
- 4b. Petiole without red, linear dots; leaf lobules absent.
- 5a. Plant epiphytic; placentae bifid 5. *B. arborea*
- 5b. Plant epipetric; placentae undivided 84. *B. lithophila*
- 1b. Leaf blade unlobed to shallowly lobed, never divided to 1/2 of leaf length.

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- 6a. Leaf blade glabrous.
- 7a. Capsules wingless, fusiform; placentae undivided 166. *B. wilsonii*
- 7b. Capsules 3-winged; placentae bifid.
- 8a. Both male and female tepals 2.
- 9a. Leaf blade herbaceous, shallowly lobed, lobes narrowly triangular 170. *B. xishuiensis*
- 9b. Leaf blade thick, unlobed 153. *B. summoglabra*
- 8b. Male tepals 4.
- 10a. Female tepals 3 or 4 76. *B. labordei*
- 10b. Female tepals 2 136. *B. rongjiangensis*
- 6b. Leaf blade pubescent.
- 11a. Leaf blade shallowly lobed (to 1/3 of leaf length).
- 12a. Leaves several 60. *B. guishanensis*
- 12b. Leaves 1 or 2 104. *B. muliensis*
- 11b. Leaf blade unlobed or very shallowly lobed.
- 13a. Female tepals 4; capsule irregularly dehiscent, wings subequal 42. *B. discreta*
- 13b. Female tepals 2, 3, or 5; capsule dehiscent along sutures, wings distinctly unequal (sometimes subequal).
- 14a. Female flower with 2 bracteoles 172. *B. yui*
- 14b. Female flower without bracteoles.
- 15a. Bracts serrate at apex 38. *B. dentatobracteata*
- 15b. Bracts entire to denticulate or fimbriate.
- 16a. Female tepals 2.
- 17a. Placentae bifid 169. *B. xingyiensis*
- 17b. Placentae undivided 68. *B. henryi*
- 16b. Female tepals 3–5.
- 18a. Female tepals 3 (sometimes 4 in *B. labordei*).
- 19a. Inflorescence a single axis, racemose at base 76. *B. labordei*
- 19b. Inflorescence dichasial or simple with 2 or 3 flowers.
- 20a. Outer tepals and ovary pubescent 21. *B. chingii*
- 20b. Outer tepals and ovary glabrous 51. *B. fimbristipula*
- 18b. Female tepals 5.
- 21a. Leaf blade 2–3.4(–4) cm; placentae undivided 112. *B. parvula*
- 21b. Leaf blade larger; placentae bifid.
- 22a. Staminate tepals apically acute 2. *B. acutitepala*
- 22b. Staminate tepals apically rounded or obtuse.
- 23a. Leaf blade 5–8(–15) cm; ovary hairy 117. *B. picta*
- 23b. Leaf blade 15–20(–30) cm; ovary glabrous 6. *B. asperifolia*

Key 4

- 1a. Plant erect, without creeping rhizome; internodes long.
- 2a. Stem scarcely branched; leaf blade less than 2 × as long as wide 79. *B. lancangensis*
- 2b. Stem well branched; leaf blade at least 2 × as long as wide.
- 3a. Plant dioecious; flowers fragrant; styles 4; ovary 4-loculed; female tepals 4 1. *B. acetosella*
- 3b. Plant monoecious; flowers not fragrant; styles 3; ovary 3-loculed; female tepals 6 89. *B. longifolia*
- 1b. Plant rhizomatous, without erect stem; internodes congested.
- 4a. Flowers not scented; female tepals 3; fruit ellipsoid to cylindrical, more than 2 × as long as wide.
- 5a. Leaf blade villous on abaxial surface and on petiole (sometimes nearly glabrous) 81. *B. leprosa*
- 5b. Leaf blade densely puberulous on abaxial surface and on petiole 88. *B. longicarpa*
- 4b. Flowers scented; female tepals 4 or 5; fruit nearly as long as wide.
- 6a. Plant monoecious; female tepals 5; styles 3; ovary 3-loculed; fruit 3-horned 20. *B. ceratocarpa*
- 6b. Plant dioecious; female tepals 4; styles 4; ovary 4-loculed (to many loculed); fruit subglobose or 4-horned (to many horned).
- 7a. Rhizomes elongate-ascending, rarely rooting at nodes; leaf blade narrowly triangular to ovate, 15–28 × 9–10 cm, tepals glabrous (pubescent in *B. handelii* var. *rubropilosa*) 64. *B. handelii*
- 7b. Rhizomes repent, rooting at nodes; leaf blade ovate or broadly ovate, (11–)13–53 × 11–40 cm; outer tepals abaxially puberulous 146. *B. silletensis*

Key 5

- 1a. Leaf compound or cleft to base.

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- 2a. Leaves palmately 3-cleft to base, lobules pinnately parted, petiolule absent 28. *B. coptidifolia*
 2b. Leaves palmately compound, leaflet 5–9 with distinct petiolule.
 3a. Plant rhizomatous, rhizomes elongate, aerial stems lacking; leaves subleathery, all basal; female tepals 3; placenta parietal 47. *B. fangii*
 3b. Plant erect, rhizomes very short, aerial stems always present; leaves papery, all cauline; female tepals 5; placenta axile 67. *B. hemsleyana*
- 1b. Leaf simple, distinctly lobed.
 4a. Leaf blade distinctly hairy.
 5a. Aerial stems present and with leaves.
 6a. Petioles with reflexed scalelike hairs 130. *B. reflexisquamosa*
 6b. Petioles not as above.
 7a. Stipules reniform, expanded 99. *B. mengtzeana*
 7b. Stipules triangular, not expanded 12. *B. baviensis*
 5b. Aerial stems seen only at anthesis; cauline leaf usually absent, occasionally 1.
 8a. Leaf blade and ovary pubescent.
 9a. Petioles with reflexed scalelike hairs 100. *B. miranda*
 9b. Petioles not as above 113. *B. paucilobata*
 8b. Leaf blade sparsely pubescent; ovary glabrous.
 10a. Leaf lobes rhombic 77. *B. lacerata*
 10b. Leaf lobes triangular.
 11a. Outer tepals of male flowers 1.7–2 cm 40. *B. digyna*
 11b. Outer tepals of male flowers 2–2.7 cm 83. *B. lipingensis*
- 4b. Leaf blade glabrous to sparsely hairy.
 12a. Leaf blade divided to ca. 1/2 of leaf length.
 13a. Leaf lobes with lobules 3. *B. algaia*
 13b. Leaf lobes not as above.
 14a. Leaf blade 3- or 4-lobed 32. *B. cucurbitifolia*
 14b. Leaf blade 5-lobed 113. *B. paucilobata*
- 12b. Leaf blade divided to 2/3 or more of leaf length.
 15a. Aerial stem well developed; cauline leaf always present.
 16a. Leaf blade without lobules, subglabrous 145. *B. sikkimensis*
 16b. Leaf blade with triangular lobules, glabrous.
 17a. Stem and petioles without red linear dots; abaxial wing of capsule ca. 1.5 cm 94. *B. macrotoma*
 17b. Stem and petioles with red linear dots; abaxial wing of capsule 3–5 cm 87. *B. longialata*
- 15b. Aerial stem seen only at anthesis; cauline leaf absent or occasionally 1.
 18a. Leaf blade with distinct, triangular lobules 114. *B. pedatifida*
 18b. Leaf blade without lobules.
 19a. Leaf blade deeply divided to near base, lobes very narrow, less than 1 cm wide 141. *B. scitifolia*
 19b. Leaf blade not as above.
 20a. Abaxial wing of capsule triangular to ligulate; leaf blade dull, herbaceous 25. *B. circumlobata*
 20b. Abaxial wing of capsule broadly elliptic to orbicular; leaf blade shiny, somewhat thicker 78. *B. laminariae*

Key 6

- 1a. Leaf blade symmetric, venation pinnate 171. *B. yingjiangensis*
 1b. Leaf blade somewhat asymmetric, venation palmate-pinnate.
 2a. Plant trailing with slender stems; capsules equally 3-winged, female inflorescences axillary, peduncle reduced, less than 1 cm, 1- or 2-flowered; male inflorescence terminal, producing many flowers 63. *B. hainanensis*
 2b. Plant not trailing; capsules unequally 3-winged; peduncle elongate; flowers of both sexes mixed in same inflorescence.
 3a. Aerial stem branched twice or more.
 4a. Leaf blade irregularly serrulate; styles 3; ovary glabrous, 3-loculed 155. *B. taiwaniana*
 4b. Leaf blade remotely serrulate.
 5a. Tepals glabrous; styles 2; ovary glabrous, 2-loculed 65. *B. hatacoa*
 5b. Tepals hairy; styles 3; ovary hairy, 3-loculed 29. *B. coptidimontana*
- 3b. Aerial stem unbranched or scarcely branched.
 6a. Rhizomatous leaves always present.
 7a. Leaf blade remarkably asymmetric 154. *B. ×taipeiensis*
 7b. Leaf blade slightly asymmetric.
 8a. Leaves 6–6.5 × 1.9–3 cm, only on rhizome; filaments free; styles entirely fused 159. *B. tsoongii*

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- 8b. Leaves 7–13.6 × 2.3–4.5 cm, on rhizome and aerial stem; filaments entirely fused; styles free 69. *B. hongkongensis*
 6b. Rhizomatous leaf absent at anthesis.
 9a. Leaf blade very shallowly lobed, bidentate 62. *B. gungshanensis*
 9b. Leaf unlobed or nearly so, irregularly serrulate or denticulate.
 10a. Leaf blade distinctly hairy 16. *B. ×buimontana*
 10b. Leaf blade glabrous to sparsely hairy.
 11a. Leaves abaxially sanguineous; anthers 1.9–2.2 mm 91. *B. lukuana*
 11b. Leaves green; anthers 2.4–3.2 mm.
 12a. Styles 3; ovary 3-loculed; anthers 2.9–3.2 mm 24. *B. chuyunshanensis*
 12b. Styles 2; ovary 2-loculed; anthers 2.4–2.9 mm 167. *B. wutaiana*

Key 7

- 1a. Leaf blade shallowly lobed (divided to ca. 1/3 of leaf length); lobes nearly as long as wide or distinctly longer than wide.
 2a. Leaf blade with hairs longer than 2 mm.
 3a. Rhizomes short, stout; abaxial wing of mature capsules broadly elliptic to orbicular, 2–3 cm 163. *B. villifolia*
 3b. Rhizomes well developed; abaxial wing of mature capsules triangular to ligulate, to 1.8 cm.
 4a. Leaves purple, with purplish, somewhat soft hairs 128. *B. purpureofolia*
 4b. Leaves green, with red stiff hairs 12. *B. baviensis*
 2b. Leaf blade with hairs to 1 mm at most.
 5a. Leaf blade abaxially hirsute; styles 3; ovary 3-loculed 95. *B. malipoensis*
 5b. Leaf blade not hirsute; styles 2; ovary 2-loculed.
 6a. Leaves villous or tomentose on petiole and abaxial surface; ovary hairy.
 7a. Leaves villous on petiole and abaxial surface 149. *B. smithiana*
 7b. Leaves appressed tomentose on petiole and abaxial surface.
 8a. Tepals yellowish 52. *B. flaviflora*
 8b. Tepals white to pink 111. *B. palmata*
 6b. Leaves neither villous nor tomentose; ovary glabrous.
 9a. Leaf blade adaxially glabrous or subglabrous, not puberulous 54. *B. formosana*
 9b. Leaf blade puberulous.
 10a. Leaves rugulose, lobes truncate 158. *B. truncatiloba*
 10b. Leaves not rugulose, lobes triangular 45. *B. edulis*
 1b. Leaf blade unlobed or very shallowly divided; lobes usually wider than long.
 11a. Leaf blade symmetric or nearly so; tepals pink to brownish red 126. *B. psilophylla*
 11b. Leaf blade distinctly asymmetric; tepals white to pink.
 12a. Leaf blade thin, membranous when dried; styles 3; ovary 3-loculed.
 13a. Inflorescences both terminal and axillary 72. *B. hymenocarpa*
 13b. Inflorescences axillary.
 14a. Plant with a short, stout rhizome at base; leaf blade 7–12 × 4.5–9 cm.
 15a. Plant ca. 60 cm tall; leaf blade oblong-ovate or oblong, 9–10 × 4.5–9 cm 27. *B. clavicaulis*
 15b. Plant 26–35(–39) cm tall; leaf blade triangular-ovate, 7–12 × 4.5–7 cm 165. *B. wenshanensis*
 14b. Plant not rhizomatous, prostrate or trailing at base; leaf blade 4–9 × 3–5 cm.
 16a. Leaf blade unlobed, margin sharply denticulate; tepals hairy 102. *B. morifolia*
 16b. Leaf blade very shallowly lobed, margin irregularly denticulate; tepals glabrous 4. *B. alveolata*
 12b. Leaf blade not membranous; styles 2 or 3; ovary 2- or 3-loculed.
 17a. Female flower axillary, solitary; terminal inflorescence staminate; plant with prostrate or decumbent stem, with distinct internodes 151. *B. sublongipes*
 17b. Flowers of both sexes mixed in the inflorescence; plant rhizomatous, with indistinct internodes and/or erect with distinct internodes.
 18a. Rhizome absent 41. *B. discrepans*
 18b. Rhizome present.
 19a. Plant to 13 cm tall; rhizome slender 53. *B. fordii*
 19b. Plant much taller; rhizome stout.
 20a. Leaf blade adaxially densely hairy.
 21a. Rhizome short, stout; leaves only on aerial stem; leaf blade puberulous 17. *B. cathayana*
 21b. Rhizome elongate; leaves on rhizome and aerial stem; leaf blade not puberulous.
 22a. Staminate flowers usually prematurely dropping in bud; pollen abortive 105. *B. nantoensis*
 22b. Staminate flowers opening normally; pollen fertile.
 23a. Leaf blade 6–7 × 4–5 cm; stipules and bracts ciliate 121. *B. polytricha*

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- 23b. Leaf blade 7–16(–25) × 5–9(–14) cm; stipules and bracts entire 119. *B. pinglinensis*
 20b. Leaf blade adaxially glabrous to sparsely hairy.
 24a. Leaf abaxial surface and petiole densely puberulous; tepals abaxially puberulous 43. *B. dryadis*
 24b. Leaf and tepals not puberulous.
 25a. Leaf blade basally cuneate to rounded, abaxially tomentose 66. *B. hekouensis*
 25b. Leaf blade basally cordate, not tomentose.
 26a. Female flowers with 2 bracteoles; bracts serrate; abaxial wing of capsule to 5 mm 157. *B. tengchiana*
 26b. Female flowers without bracteoles; bracts entire; abaxial wing of capsule much longer.
 27a. Rhizome elongate; leaves usually present on rhizomes at anthesis.
 28a. Abaxial wing of capsule triangular, 7–16 mm 54. *B. formosana*
 28b. Abaxial wing of capsule orbicular, 18–26 mm.
 29a. Aerial stem 0–8(–15) cm; leaf subleathery 14. *B. bouffordii*
 29b. Aerial stem 40–95 cm; leaf herbaceous 23. *B. chitoensis*
 27b. Rhizome short, stout; leaves not seen on rhizomes at anthesis.
 30a. Leaves abaxially sanguineous; anthers 1.9–2.2 mm; styles 3; ovary 3-loculed 91. *B. lukuana*
 30b. Leaves green; anthers 2.4–3.2 mm; styles 2 or 3; ovary 2- or 3-loculed.
 31a. Styles 3; ovary 3-loculed; anthers 2.9–3.2 mm 24. *B. chuyunshanensis*
 31b. Styles 2; ovary 2-loculed; anthers 2.4–2.9 mm 167. *B. wutaiana*

Key 8

- 1a. Styles 2; ovary 2-loculed 109. *B. oreodoxa*
 1b. Styles 3; ovary 3-loculed.
 2a. Middle cross-section of ovary with septal placentation or connecting tissue at center.
 3a. Staminate and pistillate tepals 2; leaf adaxially sparsely appressed rusty fibrillose 74. *B. jingxiensis*
 3b. Staminate tepals 4, pistillate tepals 3.
 4a. Leaf adaxially glabrous 173. *B. zhengyiana*
 4b. Leaf adaxially hairy.
 5a. Leaf adaxially long hirsute, tertiary veins obscure 152. *B. suboblata*
 5b. Leaf adaxially sparsely pilose-setose, tertiary veins conspicuous, percurrent 142. *B. semiparietalis*
 2b. Middle cross-section of ovary with parietal placentation.
 6a. Leaf without a distinct apex, adaxially glabrous 173. *B. zhengyiana*
 6b. Leaf blade with a distinct apex, adaxially ± pubescent.
 7a. Inflorescence a thyrsoid cyme; leaves 23–50 × 16–40 cm 85. *B. liuyanii*
 7b. Inflorescence a dichasial cyme; leaves smaller.
 8a. Leaf surface strongly bullate or pustulate
 9a. Leaf blade with dark brown to black broad palmate bands, apex shortly acuminate 97. *B. masoniana*
 9b. Leaf blade without dark palmate bands, apex rounded 50. *B. fimbribracteata*
 8b. Leaf surface flat or rugose.
 10a. Leaf blade sparsely hairy or subglabrous.
 11a. Leaf blade ovate to broadly lanceolate 110. *B. ornithophylla*
 11b. Leaf blade broadly ovate to suborbicular.
 12a. Leaf blade often very shallowly angularly lobed, often with pale green to white spots at junction between veins and brownish spots in intercostal areas; tertiary veins randomly reticulate, divergence angle 40°–60° 93. *B. luzhaiensis*
 12b. Leaf blade unlobed, spot not as above; tertiary veins ± percurrent, divergence angle 60°–120°.
 13a. Tertiary veins oppositely percurrent, divergence angle 90°–120°.
 14a. Leaf blade 3.5–15 × 3–13 cm, adaxially with whitish spots along major veins 142. *B. semiparietalis*
 14b. Leaf blade 12–32 × 11–27 cm, adaxially not as above.
 15a. Leaf blade apically acute to shortly acuminate, adaxially with a broad whitish ring 80. *B. lanternaria*
 15b. Leaf blade apically obtuse to rounded, adaxially without spot or with white spot between major veins 31. *B. crystallina*
 13b. Tertiary veins obliquely alternately percurrent, divergence angle 60°–80°.
 16a. Leaf petiole appressed-pilose, blade subleathery; ovary obovoid 125. *B. pseudoleprosa*
 16b. Leaf petiole pilose or hirsute-villous, blade herbaceous; ovary ovoid to ellipsoid.
 17a. Leaf blade 5–9 × 6–8 cm, apex obtuse to rounded 10. *B. austroguangxiensis*
 17b. Leaf blade larger, longer than 10 cm, apex acuminate or shortly so.
 18a. Leaf blade green throughout; stipules apically obtuse to emarginate 123. *B. pseudodaxinensis*
 18b. Leaf blade adaxially with a broad whitish ring; stipules apically acute 36. *B. daxinensis*
 10b. Leaf blade densely to moderately hairy.

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- 19a. Rhizomes slender, long creeping or vinelike, internodes elongate, usually longer than 1 cm.
 20a. Capsule distinctly curved 33. *B. curvicarpa*
 20b. Capsule not distinctly curved.
 21a. Stipules basally obliquely auriculate 9. *B. auritistipula*
 21b. Stipules basally not auriculate.
 22a. Ovary and capsule beaked at summit 134. *B. rhynchocarpa*
 22b. Ovary and capsule not beaked at summit.
 23a. Leaf blade moderately setulose 37. *B. debaoensis*
 23b. Leaf blade densely pilose 122. *B. porteri*
- 19b. Rhizomes stout, internodes usually shorter than 1 cm.
 24a. Leaf tertiary veins randomly reticulate, never percurrent, thin, divergence angle 40°–60°.
 25a. Leaf blade shallowly angularly lobed, adaxially sparsely tomentose 93. *B. luzhaiensis*
 25b. Leaf blade unlobed, adaxially tomentose.
 26a. Leaf blade ovate, 10–25 × 5–18 cm, adaxially with a broad white band on midvein 92. *B. luochengensis*
 26b. Leaf blade broadly ovate to suborbicular, 3–9 × 2–8 cm, adaxially without a broad white band 122. *B. porteri*
- 24b. Leaf tertiary veins ± percurrent, abaxially prominent, divergence angle 60°–100°.
 27a. Leaf blade adaxially villous-hirsute, hairs reddish, 3–5 mm; capsule 1.5–2.1 cm 59. *B. guangxiensis*
 27b. Leaf blade with other trichome types, hairs shorter than 2.5 mm; capsule to 1.2 cm.
 28a. Androecium actinomorphic.
 29a. Peduncle glandular hispid; flowers usually greenish or yellowish green 49. *B. filiformis*
 29b. Peduncle glabrous or pilose.
 30a. Leaf blade slightly rugose or nearly flat, sparsely setulose; flowers reddish to white 13. *B. biflora*
 30b. Leaf blade distinctly rugose, densely pilose; flowers greenish yellow with reddish base 90. *B. longistyla*
- 28b. Androecium zygomorphic.
 31a. Peduncle densely hirsute-villous.
 32a. Leaf blade surface flat or slightly rugose, lacking spots, hairs sparser 26. *B. cirrosa*
 32b. Leaf blade surface rugose, with a broad white or pale ring, hairs denser 118. *B. picturata*
 31b. Peduncle pilose or glabrous.
 33a. Ovary glandular pilose, abaxial wing obliquely triangular 107. *B. obliquifolia*
 33b. Ovary not glandular pilose, abaxial wing usually lunate or oblong (sometimes obliquely triangular in *B. retinervia*).
 34a. Leaf blade slightly rugose or nearly flat.
 35a. Fruit or ovary sparsely hairy, wings unequal 71. *B. huangii*
 35b. Fruit or ovary glabrous, wings equal or subequal 120. *B. platycarpa*
 34b. Leaf blade distinctly rugose.
 36a. Leaf blade with a white ring 103. *B. morsei*
 36b. Leaf blade often with a white band along major veins.
 37a. Capsule crisped-villous, broadly ovoid, apex with short beak 132. *B. retinervia*
 37b. Capsule glabrous or near so, ellipsoid, apex without short beak 106. *B. ningmingensis*

Key 9

- 1a. Leaf blade glabrous on both sides.
 2a. Leaf blade shallowly lobed (divided to ca. 1/3 of leaf length) 39. *B. dielsiana*
 2b. Leaf blade unlobed or very shallowly lobed.
 3a. Leaf blade symmetric or nearly so, cauline leaves several 126. *B. psilophylla*
 3b. Leaf blade distinctly asymmetric, cauline leaves 0 or 1 (or 2).
 4a. Rhizomes 2–3 cm in diam.; leaf blade 23–26 × 32–34 cm 98. *B. megalophyllaria*
 4b. Rhizomes to 1(–2) cm in diam.; leaf blade to 16 cm.
 5a. Leaf blade basally rounded 70. *B. howii*
 5b. Leaf blade basally cordate.
 6a. Styles 3; ovary 3-loculed; placentation axile or parietal.
 7a. Leaf blade green, broadly ovate to orbicular; wings of capsule oblate to transversely oblong; ovary 3-loculed; placentae axile 48. *B. fenicis*
 7b. Leaf blade purplish with pale green spots adaxially, narrowly ovate to ovate; abaxial wing of capsule broadly elliptic to ligulate; ovary 1-loculed; placentae parietal 124. *B. pseudodryadis*
 6b. Styles 2; ovary 2-loculed; placentation axile.
 8a. Petiole and leaf blade reddish when young, green when mature; bract to 5 cm 150. *B. subhowii*

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- 8b. Petiole red, leaf blade adaxially green, abaxially reddish purple on veins; bract much smaller.
 9a. Leaf blade 9–16(–18) × 5–6(–10) cm; abaxial wing of capsule broadly elliptic to orbicular 14. *B. bouffordii*
 9b. Leaf blade 3–9 × 2–6 cm; abaxial wing of capsule ligulate 138. *B. rubinea*
- 1b. Leaf blade pubescent.
 10a. Leaf blade broadly lanceolate to narrowly ovate 22. *B. chishuiensis*
 10b. Leaf blade ovate, broadly ovate, orbicular or nearly so.
 11a. Leaf blade shallowly lobed (divided to ca. 1/3 of leaf length).
 12a. Rhizome with elongate internodes 131. *B. repenticaulis*
 12b. Rhizome with congested internodes.
 13a. Leaf blade adaxially subglabrous or sparsely hispidulous; petiole not sulcate 46. *B. emeiensis*
 13b. Leaf blade adaxially sparsely pubescent when young; petiole sulcate 96. *B. manhaoensis*
- 11b. Leaf blade unlobed or very shallowly lobed.
 14a. Leaf blade adaxially long setose.
 15a. Ovary glabrous, 2-loculed; leaf blade variegated, setae pale color 133. *B. rex*
 15b. Ovary hairy, 2- or 3-loculed; leaf blade not variegated; setae red.
 16a. Plant prostrate with slender stems, internodes of stem elongate 139. *B. ruboides*
 16b. Plant rhizomatous, internodes congested.
 17a. Ovary 3-loculed; styles 3; leaf blade unlobed 143. *B. setifolia*
 17b. Ovary 2-loculed; styles 2; leaf blade very shallowly lobed 82. *B. limprichtii*
- 14b. Leaf blade not long setose.
 18a. Ovary and tepals glabrous.
 19a. Styles 3; ovary 3-loculed.
 20a. Leaf blade adaxially glabrous or pilose, abaxially hispidulous, apex acute 137. *B. rotundilimba*
 20b. Leaf blade adaxially hirsute, abaxially densely hirsute, apex acuminate 148. *B. sinovietnamica*
 19b. Styles 2; ovary 2-loculed.
 21a. Leaf blade not spotted, green on both surfaces; flower buds subglobose.
 22a. Leaf blade adaxially sparsely pubescent when young; tepals white 96. *B. manhaoensis*
 22b. Leaf blade adaxially glabrous; tepals orange-red 30. *B. crocea*
 21b. Leaf blade adaxially spotted, abaxially reddish; flower buds ovoid.
 23a. Leaf blade with a horseshoe-shaped band; tepals pinkish or pink 133. *B. rex*
 23b. Leaf blade with pale green spots on intercostal areas; tepals yellow 168. *B. xanthina*
- 18b. Ovary and outer tepals abaxially hairy.
 24a. Leaf blade with a white band in intercostal areas and/or rusty-red on veins, adaxially densely hairy; capsule unequally 3-winged; styles 3; ovary 2-loculed 162. *B. versicolor*
 24b. Not as above.
 25a. Leaf blade rugose, with or without pale green spots, adaxially sparsely hairy; capsule subequally 3-winged; styles 3; ovary 3-loculed 61. *B. gulinqingensis*
 25b. Leaf blade not as above.
 26a. Styles 3; ovary 3-loculed.
 27a. Tepals and ovary shortly pilose; leaf blade 5.5–11 × 4.8–8.5 cm 148. *B. sinovietnamica*
 27b. Tepals and ovary villous; leaf blade 1.8–8 × 1.5–6.2 cm 108. *B. obsolescens*
 26b. Styles 2; ovary 2-loculed.
 28a. Leaf puberulous on abaxial surface and on petiole.
 29a. Rhizomes slender, to 1 cm in diam., internodes elongated, 1–2(–3) cm 35. *B. daweshanensis*
 29b. Rhizomes 2–3 cm in diam., internodes congested 86. *B. longanensis*
 28b. Leaf not puberulous.
 30a. Leaf blade spotted.
 31a. Leaf blade adaxially glaucous with metallic shine, unlobed 135. *B. rockii*
 31b. Leaf blade adaxially pale greenish to whitish along main veins against reddish background color, very shallowly lobed 8. *B. augustinei*
 30b. Leaf blade green or sometimes reddish, not spotted.
 32a. Leaf blade with fine, long hairs to 6 mm 44. *B. duclouxii*
 32b. Leaf blade with short hairs to 1 mm.
 33a. Leaf blade 3.5–5 cm 56. *B. gagnepainiana*
 33b. Leaf blade usually larger.
 34a. Leaves very shallowly lobed; cauline leaves 1 or 2 149. *B. smithiana*
 34b. Leaves unlobed; cauline leaves absent 15. *B. brevisetulosa*

无翅秋海棠 *wu chi qiu hai tang*

Herbs, dioecious, erect, to 2 m tall. Rhizomes short, stout. Stems branching twice or more. Leaves cauline; stipules deciduous, lanceolate, 1–1.3 × ca. 3.5 mm; petiole 2.7(–10) cm, glabrous or pubescent; blade oblong, ovate-lanceolate, or oblong-lanceolate, asymmetric, 10–14(–27) × 3–4.5(–8) cm, glabrous, subglabrous, or pubescent, venation palmate-pinnate, 5- to 7-veined, base obliquely cordate, margin undivided, shallowly and remotely serrate, apex acuminate or acute. Inflorescences much reduced; bracts ovate-lanceolate, 1–1.5 cm, apex acuminate. Staminate flowers: pedicel ca. 1.2 cm; tepals 4, white or pinkish, glabrous, outer 2 obovate to obovate, ca. 1.2 × 1 cm, inner 2 lanceolate to oblong, 13–15 × ca. 7 mm; stamens numerous; filaments free; anthers oblong. Pistillate flowers: pedicel 5–10 mm; ovary obovoid, glabrous, (3 or)4-loculed; placentae axile, bilamellate; tepals 4, white or pinkish, glabrous, outer 2 obovate-orbicular, ca. 1 × 1 cm, inner 2 oblong, ca. 10 × 7 mm; styles (3 or)4, fused at base; stigmas 2-cleft, spiraled. Fruit berrylike, pendulous, (3 or)4-horned. Fl. Apr–May, fr. May. $2n = 20, 22^*$.

Moist shaded environments in evergreen broad-leaved forests; 500–1800 m. SE Xizang, S Yunnan [Laos, Myanmar, Thailand, Vietnam].

- 1a. Blade and petiole glabrous or nearly so 1a. var. *acetosella*
 1b. Blade and petiole pubescent 1b. var. *hirtifolia*

1a. *Begonia acetosella* var. *acetosella*

无翅秋海棠(原变种) *wu chi qiu hai tang* (*yuan bian zhong*)

Begonia tetragona Irmscher.

Blade and petiole glabrous or nearly so.

Moist shaded environments in evergreen broad-leaved forests; 500–1800 m. SE Xizang (Mêdog), S Yunnan [Laos, Myanmar, Thailand, Vietnam].

1b. *Begonia acetosella* var. *hirtifolia* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 515. 1939.

粗毛无翅秋海棠 *cu mao wu chi qiu hai tang*

Blade and petiole pubescent.

Forests; ca. 1500 m. Yunnan (Simao) [Myanmar].

2. *Begonia acutitepala* K. Y. Guan & D. K. Tian, Acta Bot. Yunnan. 22: 129. 2000.

尖被秋海棠 *jian bei qiu hai tang*

Herbs, 10–30 cm tall, tuberous. Leaves 1 or 2(or 3), basal; stipules not seen; petiole 20–30 cm; blade green on both surfaces, broadly cordate, 14–20 × 10–15 cm, papery, base deeply cordate, margin serrulate, apex acuminate. Inflorescence 10–30 cm, hirsute, villous, tomentose; flowers pink; bracts green, broadly ovate, 1–1.2 cm, margin entire. Staminate flowers: pedicel 1.5–6 cm; tepals 4, apex acute, outer 2 ovate-lanceolate, inner 2 obovate or spatulate, ca. 1.2 × 0.6 cm, apex obtuse; stamens numerous; anthers obovoid-globose, apex concave. Pistillate flowers: pedicel ca. 3 cm; tepals 5, unequal, ovate-lanceolate to obovate, abaxially tomentose, apex acute or obtuse; ovary sparsely tomentose, 3-loculed; placentae axile, bilamel-

late; styles 3; stigmas spiraled. Capsule ellipsoid, unequally 3-winged; abaxial wing triangular, ca. 1 cm, apex truncate; lateral wings smaller, lunate. Fl. Sep–Nov.

- Woods; ca. 1600 m. Yunnan (Maguan).

This species is similar to *Begonia labordei* but differs by its acute tepals and non-racemose inflorescence.

3. *Begonia algaia* L. B. Smith & Wasshausen, Phytologia 52: 441. 1983.

美丽秋海棠 *mei li qiu hai tang*

Begonia calophylla Irmscher, Mitt. Inst. Allg. Bot. Hamburg 6: 351. 1927, not Gilg ex Engler (1921).

Herbs, rhizomatous. Rhizomes elongate, 5–8 mm in diam. Stems short. Leaves mostly basal; stipules caducous; petiole 13–26 cm, rusty villous; blade broadly ovate to oblong, slightly asymmetric, 10–20 × 9–19(–21) cm, sparsely pubescent, venation palmate, 6(–8)-veined, base slightly obliquely cordate, margin remotely serrate, distinctly lobed, divided to ca. 1/2 of leaf length; lobes caudate-acuminate at apex; lobules present. Inflorescences 17–27 cm tall, sparsely rusty villous; bracts oblong-ovate, 4–5 mm, villous, apex acute. Staminate flowers: pedicel 4–4.5 cm; tepals 4, pinkish, outer 2 broadly ovate, 2–2.7 cm, outside villous, inner 2 obovate-oblong, 2–2.6 × ca. 1 mm; stamens numerous; filaments fused at base; anthers oval. Pistillate flowers: pedicel 4–5 cm; ovary oblong, ca. 10 × 5 mm, glabrous; placentae axile, bilamellate; tepals 5, unequal, obovate to broadly ovate, 2–2.5 × 0.7–2.2 cm, outside villous; styles 2, fused to halfway; stigmas 2-cleft, spiraled. Capsule nodding, ca. 1.2 × 9 mm, unequally 3-winged; abaxial wing larger, triangular. Fl. Jul–Aug.

- Forests or scrubby vegetation, moist environments by streams; 300–800 m. Jiangxi.

Very similar to *Begonia pedatifida*, this species can only be distinguished by its shallowly divided leaves and cordate leaf bases.

4. *Begonia alveolata* T. T. Yu, Bull. Fan Mem. Inst. Biol., n.s., 1: 121. 1948.

点叶秋海棠 *dian ye qiu hai tang*

Begonia pingbienensis C. Y. Wu.

Herbs, erect on upper part, ascending at base. Rhizome absent. Stems slender. Leaves cauline, asymmetric; stipules ovate-lanceolate, ca. 5 mm, membranous, pilose, apex acute; petiole 3–6 mm, densely villous; blade ovate, asymmetric, 4–6.5 × 3–5 cm, thin when dried, abaxially densely papillose, subglabrous or sparsely pubescent on veins, villous at junction between blade and petiole, adaxially sparsely hirsute, venation palmate-pinnate, 6-veined, base obliquely cordate, margin irregularly denticulate, apex acuminate. Inflorescences subglabrous; bracts caducous, apex acuminate. Staminate flowers: tepals 4, pinkish, glabrous, outer 2 elliptic or obovate, ca. 12 × 6 mm, inner 2 elliptic, ca. 6 × 2 mm; stamens numerous; filaments free. Pistillate flowers: tepals 5, subequal, 8–10 × 4–6 mm, glabrous; ovary 3-loculed, glabrous; placentae axile, bilamellate; styles 3, free; stigmas 2-cleft, spiraled. Capsules pendulous, unequally 3-winged; abaxial wing larger, triangular. Fl. Nov.

Forests, moist environments; 1000–1500 m. Yunnan (Pingbian) [Vietnam].

This species resembles *Begonia morifolia* but differs by its glabrous flowers and very shallowly lobed leaves.

5. *Begonia arboreta* Y. M. Shui, Acta Bot. Yunnan. 24: 307. 2002.

树生秋海棠 shu sheng qiu hai tang

Herbs, deciduous, epiphytic. Tubers subglobose, ca. 1 cm in diam. Leaves solitary; stipules caducous, basal, glabrous; petiole 12–14 cm; blade asymmetric, broadly ovate, 14–15 × 14–17 cm, papery, venation palmate, 3–5-veined, base obliquely cordate, margin irregularly repand-denticulate, distinctly lobed, divided to 3/5 of leaf length; lobes lanceolate, apex acuminate. Inflorescences 10–12 cm tall, terminal, glabrous; bracts caducous, ovate, ca. 0.6 × 0.2 mm. Staminate flowers not seen. Pistillate flowers: pedicel 3–3.3 cm; tepals not seen; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3; stigmas 2-cleft. Capsule pendulous, 2–2.4 × 1.2–1.4 cm, subequally 3-winged; abaxial wing slightly larger, apex subtruncate.

• Evergreen broad-leaved forests, on tree trunks; 1700–1900 m. Yunnan (Lüchun).

The description of this epiphytic species is based on a single specimen collected from Lüchun. *Begonia arboreta* may represent a diminished form of *B. garrettii* Craib from Thailand and perhaps does not warrant the specific status.

6. *Begonia asperifolia* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 6: 359. 1927.

糙叶秋海棠 cao ye qiu hai tang

Herbs, deciduous. Tubers subglobose, 1.3–2 cm in diam. Leaves 1 (or 2), basal, occasionally with short stem; stipules caducous; petiole (8–)15–23(–28) cm, subglabrous or tomentose; blade broadly ovate, asymmetric, 15–20(–30) × 11–18(–20) cm, abaxially pubescent, more densely so on veins, or rusty tomentose, adaxially sparsely pubescent or densely strigose, venation palmate, 6–8-veined, base slightly oblique, cordate, margin irregularly serrulate, undivided or very shallowly lobed. Inflorescences terminal, racemose at base, 12–25 cm tall, subglabrous; bracts oblong-ovate to ovate, 5–6 × 1–1.2 cm, membranous, apex obtuse. Staminate flowers: pedicel 1–1.5(–2.5) cm; tepals 4, pink, glabrous, outer 2 suborbicular, 1.1–1.3 × 1–1.2 cm, inner 2 oblong to ovate-oblong, 8–10 × 5–7 mm; stamens numerous; filaments free; anthers oblong. Pistillate flowers: pedicel 2–2.5 cm; tepals 5, pink, unequal, obovate to suborbicular, 5–11 × 3–9 mm, glabrous; ovary elliptic, ca. 7 × 5 mm, glabrous, 3-loculed; placentae axile, bilamellate; styles 3, free; stigmas U-shaped, slightly spiraled. Capsule pendulous, oblong to obovoid-oblong, unequally 3-winged; abaxial wing triangular or obliquely so, 1.2–1.4(–1.9) cm; lateral wings 3–4 mm, rarely absent or reduced to very narrow lamellae. Fl. Aug–Oct, fr. Sep–Nov.

• Broad-leaved forests, mixed broad-leaved and coniferous forests, along streams, rocky slopes; (1500–)1800–3400 m. SE Xizang, W Yunnan.

Similar to *Begonia labordei*, this species differs by its large, some-

what rugulose leaves and 5-tepaled pistillate flowers (in *B. labordei*, the pistillate flowers have 3 (or 4) tepals). Some specimens of intermediate size and lacking pistillate flowers are difficult to identify.

- 1a. Leaf blade abaxially pubescent, adaxially sparsely pubescent; flowers much more than 1 cm in diam. 6a. var. *asperifolia*
- 1b. Leaf blade abaxially rusty tomentose, adaxially densely strigose; flowers ca. 1 cm in diam.
 - 2a. Capsule with 3 conspicuous unequal wings 6b. var. *tomentosa*
 - 2b. Capsule with large abaxial wing, lateral wings absent or reduced to very narrow lamellae 6c. var. *unialata*

6a. *Begonia asperifolia* var. *asperifolia*

糙叶秋海棠(原变种) cao ye qiu hai tang (yuan bian zhong)

Leaf blade abaxially pubescent, adaxially sparsely pubescent. Flowers much more than 1 cm in diam. Capsule with 3 conspicuous unequal wings. Fl. Aug–Oct, fr. Oct.

• Broad-leaved forests, mixed broad-leaved and coniferous forests, along streams, rocky slopes; (1500–)2000–3400 m. SE Xizang (Bomi, Mêdog, Zayü), NW Yunnan.

6b. *Begonia asperifolia* var. *tomentosa* T. T. Yu, Bull. Fan Mem. Inst. Biol., n.s., 1: 118. 1948.

倭江秋海棠 qiu jiang qiu hai tang

Leaf blade abaxially rusty tomentose, adaxially densely strigose. Flowers ca. 1 cm in diam. Capsule with 3 conspicuous unequal wings. Fl. Aug, fr. Sep.

• Forest understories; ca. 1800 m. NW Yunnan (Dulong Jiang).

6c. *Begonia asperifolia* var. *unialata* T. C. Ku, var. nov.

窄檐糙叶秋海棠 zhai yan cao ye qiu hai tang

Type: China. Yunnan: Yangbi Xian, in mixed forests, 1 Nov 1929, R. C. Ching 2541 (holotype, PE).

A var. *asperifolia capsulae ala abaxiali magna oblique triangulari 1.2–1.9 cm longa, ejus alis lateralibus absentibus vel in lamellas angustissimas redactis differt.*

Leaf blade abaxially pubescent, adaxially sparsely pubescent. Flowers not seen. Capsule 3-winged; abaxial wing obliquely triangular, 1.2–1.9 cm; lateral wings absent or reduced to very narrow lamellae. Fr. Oct–Nov.

• Mixed forests. W Yunnan (Yangbi).

7. *Begonia asteropyrifolia* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 356. 2005.

星果草叶秋海棠 xing guo cao ye qiu hai tang

Herbs rhizomatous. Rhizomes 3–6 cm, ca. 1 cm in diam., villous; internodes 0.7–1.1 cm. Leaves all basal; stipules triangular or ovate-triangular; petiole 3–5 cm, hirsute-villous; blade ovate with 2- or 3-angular lobes, 6.5–8.5 × 4–5 cm, peltate,

thickly papery, rugose, abaxially with dense curly hairs, adaxially densely tuberculate-pilose, margin serrulate and ciliate, apex acuminate. Inflorescences axillary, flowers 7–13 in a dichasial cyme; peduncle 5–6 cm, hirsute-villous; bracts lanceolate, 7–9 × 2–3.5 mm, glabrous, apex acute. Staminate flowers: pedicel 1.1–1.3 cm, hirsute-villous; tepals 2 or 4, outer 2 pink, suborbicular, 8–9 mm in diam., abaxially strigose-pilose, inner 2 pinkish or white, oblong, 9–10 × ca. 4 mm, glabrous; androecium zygomorphic; stamens numerous; filaments 0.9–1 mm, fused below into a short column; anthers obovoid. Pistillate flowers unknown. Capsule broadly ovoid, 8–9 × 10–12 mm, pilose, 1-loculed with parietal placentation; styles 3, 1–1.2 mm, persistent; wings 3, unequal, triangular, pilose, apex orbicular. Fl. Feb–Sep.

- Limestone hills. 300–400 m. Guangxi (Donglan).

8. *Begonia augustinei* Hemsley, Gard. Chron., ser. 3, 2: 286. 1900.

歪叶秋海棠 wai ye qiu hai tang

?*Begonia menglianensis* Y. Y. Qian.

Herbs, rhizomatous. Rhizomes elongate. Leaves basal; stipules ovate, 7–8 × ca. 5 mm, membranous, apex acute; petiole (6–)15–22 cm, densely villous; blade abaxially brownish purple, adaxially pale greenish to whitish along main veins against reddish background color, very shallowly lobed, asymmetric, ovate to broadly ovate, 7–14 × 5–11 cm, abaxially villous on veins, adaxially densely hirsute, venation palmate, 7- or 8-veined, base cordate to deeply cordate, margin irregularly serrulate, very shallowly divided; lobes triangular, apex acute or acuminate. Inflorescences (6–)15–18 cm, pubescent or subglabrous; bracts oblong, ca. 10 × 4 mm, sparsely ciliate when young, apex acute. Staminate flowers: pedicel 1.6–3 cm; tepals 4, pinkish, outer 2 oblong to ovate, 1.4–1.8 × ca. 0.9 cm, outside pilose, inner 2 elliptic, 10–13 × ca. 7 mm; stamens numerous; filaments free; anthers oblong; connective extended, acuminate. Pistillate flowers: tepals 5; ovary sparsely pilose, 2-loculed; placentae axile, bilamellate; styles 2; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing broadly falcate, 1.7–2.1 cm; lateral wings ca. 5 mm. Fl. Jun–Sep.

- Scrubby vegetation, on rocks in shaded moist environments; 1000–1500(–1800) m. S Yunnan.

9. *Begonia auritistipula* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 357. 2005.

耳托秋海棠 er tuo qiu hai tang

Herbs vinelike. Rhizomes long creeping, zigzag, 30–50 cm, 3–5 mm in diam., sparsely hirsute-villous; internodes 3–5 cm. Leaves all basal; stipules broadly ovate, 9–11 mm, base obliquely auriculate, margin entire; petiole 9–12 cm, sparsely reflexed hirsute; blade ovate, 10–18 × 4–7 cm, papery, rugose, abaxially hirsute-pilose on veins, adaxially setulose, base obliquely deeply cordate, margin serrulate and ciliate, apex acuminate. Inflorescences axillary, flowers 8–13 in 2–4 times branched dichasial cyme; peduncle 5–9 cm, glabrous; bracts

oblong or broadly obovate, 1.2–1.4 × 0.9–1.1 cm, glabrous, margin ciliate, apex rounded. Staminate flowers: pedicel ca. 1.5 cm, glabrous; tepals 4, outer 2 pink, with red veins, suborbicular, 1–1.2 cm in diam., abaxially sparsely hirsute, inner 2 white or pinkish, elliptic, 9–10 × 3–3.5 mm, glabrous; androecium zygomorphic; stamens numerous; filaments nearly free, 0.8–1 mm; anthers obovoid, ca. 1.3 × 0.7 mm, apex emarginate. Pistillate flowers: tepals 3, outer 2 with pink veins, suborbicular, 0.8–1 cm in diam., abaxially strigose-hirsute; ovary 5–6 × 4–4.5 mm, sparsely strigose-hirsute, 1-loculed with parietal placentation; styles 3, free, 1.8–2.3 mm; wings 3, unequal, apex truncate or rounded. Capsule unknown. Fl. May–Nov.

- Originally cultivated at the Guangxi Botanical Garden of Medicinal Plants, without detailed accession information.

The type was made from plants in cultivation at the Kunming Botanical Garden, Chinese Academy of Sciences, in Yunnan.

10. *Begonia austroguangxiensis* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 359. 2005.

桂南秋海棠 gui nan qiu hai tang

Herbs rhizomatous. Rhizomes 4–7 cm, 3–4 mm in diam.; internodes 2–3 mm, sparsely hirsute-villous. Leaves all basal; stipules triangular, 5–6 × 2–3 mm, margin entire; petiole 6–20 cm, hirsute-villous; blade broadly ovate or suborbicular, 5–9 × 6–8 cm, abaxially tomentose-pilose on major veins and sparsely so on minor veins, adaxially flat and very sparsely setulose, base obliquely deeply cordate, margin serrulate and ciliate, apex rounded or obtuse. Inflorescences axillary, flowers 5–12 in a dichasial cyme; peduncle 3–20 cm, pilose or subglabrous; bracts triangular, ovate or rounded, 2.5–5 × 2–3.5 mm, margin entire or serrulate and ciliate. Staminate flowers: tepals 4, outer 2 pinkish or white, suborbicular or broadly ovate, 8–17 mm in diam., abaxially pilose or glabrous, inner 2 white, obovate to oblanceolate, 8–14 × 3–4 mm; stamens numerous; filaments nearly free, 1–1.5 mm; anthers obovoid, 1–1.3 mm, apex subemarginate. Pistillate flowers: tepals 3, outer 2 pinkish or white, suborbicular, 6–9 mm in diam., inner 1 obovate, 4–7 × 2–3.5 mm; styles 3, free, 2–3 mm; ovary 1-loculed with parietal placentation. Capsule nodding, 8–9 × 10–12 mm, pilose or glabrous, apex with persistent styles; wings 3, unequal, lunate, larger one 3–6 mm. Fl. May–Oct.

- Limestone forests, on rocks in shaded environments; 200–600 m. Guangxi (Longzhou).

11. *Begonia austrotaiwanensis* Y. K. Chen & C. I. Peng, J. Arnold Arbor. 71: 567. 1990.

南台湾秋海棠 nan tai wan qiu hai tang

Herbs, deciduous; rhizomes elongate, moniliform. Leaves basal; stipules triangular, 7–22 × 4–9 mm; petiole to 40 cm, glabrous; blade broadly ovate, asymmetric, 13–38 × 10–32 cm, venation palmate, 6–10-veined, base obliquely cordate, margin irregularly serrate, shallowly lobed, apex acuminate or apiculate. Inflorescences to 55 cm tall; peduncle to 42 cm; bracts caducous, in pairs, narrowly ovate to elliptic, 8–12 × 3.5–6.5 mm, glabrous, margin dentate, apex acute. Flowers scented. Staminate flowers: tepals 4, pink or purplish, outer 2 suborbi-

cular to orbicular, 1.3–3.5 × 0.9–3.2 cm, inner 2 lanceolate to narrowly obovate, 1–3.2 cm × 6–8 mm; stamens numerous; filaments free; anthers obovoid. Pistillate flowers: tepals (2 or 3)(or 4), outer 2 suborbicular or oblate-orbicular, 1.6–2.3 × 1.4–3.7 cm, inner 1 oblanceolate or obovate, 1.2–2.3 × 0.7–2.3 cm; ovary glabrous, 2-loculed; placentae axile, bilamellate or 4-cleft; styles 2, free; stigma 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing ligulate, 2.7–4.6 × 0.9–1.5 cm; lateral wings smaller. $2n = 38^*$.

• Rocky slopes in shaded moist environments; 200–1000 m. S Taiwan.

12. *Begonia baviensis* Gagnepain, Bull. Mus. Natl. Hist. Nat. 25: 195. 1919.

金平秋海棠 jin ping qiu hai tang

Herbs, rhizomatous, erect, ca. 50 cm tall or more. Rhizomes elongate, to 12 cm in diam. Stems 3–6 mm in diam., scabrous, densely rusty hirsute. Leaves basal and cauline; stipules caducous, triangular, 1.5–2 cm, brown villous; petiole 4–7(–11) cm, densely rusty villous; blade oblate-orbicular or suborbicular, asymmetric, 15–20 × 12–24 cm, both surfaces sparsely red hirsute, more densely so on veins, venation palmate, 6- or 7-veined, base oblique, shallowly cordate, margin remotely denticulate, shallowly lobed to distinctly lobed; lobes 5–7, triangular-ovate to ovate-lanceolate, apex acuminate. Inflorescences densely brown villous; peduncle 10–15 cm; bracts triangular, 5–6 × 4–5 mm, both surfaces and margin villous, apex caudate. Staminate flowers: tepals 4, outer 2 broadly ovate, ca. 1.7 × 1–1.2 cm, outside rusty villous, inner 2 obcordate, ca. 2 × 2 cm, glabrous; stamens numerous; anthers linear; connective extended, acute. Pistillate flowers: tepals 5, unequal, ovate, 1.2–2 cm, abaxially villous; ovary rusty villous, 2-loculed; placentae axile, bilamellate or 4-cleft; styles 2, free; stigmas 2-cleft, spiraled. Capsule nodding, 1.5–1.8 cm × 7–9 mm, rusty villous, unequally 3-winged; abaxial wing oblate-triangular, hirsute, apex obtuse; lateral wings lunate. Fl. Apr.

Forests, shaded moist environments along streams; 400–500 m. Guangxi, Yunnan (Jinping) [Vietnam].

Begonia baviensis resembles *B. purpureofolia* but differs in having green leaves with stiff hairs.

13. *Begonia biflora* T. C. Ku, Acta Phytotax. Sin. 35: 43. 1997.

双花秋海棠 shuang hua qiu hai tang

Herbs, rhizomatous. Rhizomes 3–10 mm in diam.; internodes 3–6 mm. Leaves all basal; stipules generally persistent, ovate-triangular, 4–10 × 3–6 mm, abaxially subglabrous; petiole 4–22 cm, hirsute-villous; blade adaxially without white bands or patches, obliquely broadly ovate, 8–25 × 7–23 cm, papery, abaxially pubescent, more densely so on veins, adaxially sparsely setulose or hispidulous, basally 5–7-veined, tertiary veins percurrent and reticulate, base deeply cordate, margin crenulate and irregularly denticulate, apex obtuse, sometimes rounded or acute. Inflorescences 4–13-flowered; peduncle 5–7.5 cm, glabrous or sparsely pilose; bracts caducous, oblong or ovate to broadly lanceolate, 2–3 × 1.2–2.5 mm. Staminate flowers: pedicel 8–15 mm; tepals 4, outer 2 pinkish or slightly yellowish green, broadly ovate or suborbicular, 4–11 × 5–9 mm,

abaxially glabrous or sparsely pilose, inner 2 obovate or elliptic, 6–9 × 3–5 mm, glabrous; stamens 24–30; filaments fused into a short column at base, anthers obovoid, 0.6–0.9 × 0.5–0.75 mm. Pistillate flowers: pedicel 7–14 mm; tepals 3, outer 2 suborbicular, 6–9.5 × 6–8 mm; ovary glabrous or pilose, 1-loculed with parietal placentation; styles 3, free. Capsule nodding, 6–9 mm, glabrous or pilose, unequally or subequally 3-winged; abaxial wing lunate, 2–4.5 mm; lateral wings smaller. Fl. Jan–May, fr. Feb–Jul.

• Limestone rocks or on rocky walls, in moist rocky caves; 200–400 m. Yunnan (Malipo).

Begonia biflora is similar to *B. bonii* Gagnepain, which is endemic to Vietnam, but the former species differs in having a much shorter peduncle and the stipules are not hirsute abaxially.

14. *Begonia bouffordii* C. I. Peng, Bot. Bull. Acad. Sin. 46: 255. 2005.

九九峰秋海棠 jiu jiu feng qiu hai tang

Herbs, rhizomatous, to 25 cm tall. Rhizomes creeping. Stems absent or rather short, to 8(–15) cm. Leaves basal or sometimes cauline; stipules caducous, narrowly ovate to ovate, to 7 × 3.5 mm, glabrous, margin entire, apex acuminate; petiole to 16 cm, glabrous; blade abaxially reddish purple on veins, ovate, asymmetric, 9–16(–18) × 5–6(–10) cm, succulent, nearly glabrous, venation palmate, base obliquely obtuse, margin subentire, apex acuminate. Inflorescences to 25 cm; peduncle to 17 cm; bracts caducous, narrowly ovate to ovate, to 8 mm, glabrous, margin entire, apex acuminate. Staminate flowers: tepals 4(or 6), pale pink, outer 2 broadly orbicular to orbicular, 1.5–1.9 × 1.5–1.8 cm, inner 2(or 4) oblanceolate to narrowly obovate, 10–17 × 6–9 mm; stamens 68–84; filaments free, 1.1–1.7 mm; anthers narrowly obovoid, 0.9–1.5 mm. Pistillate flowers: tepals 5, pinkish, unequal to subequal, narrowly obovate to broadly obovate, glabrous, largest 1–2.3 × 1.1–2.3 cm, smallest 8–19 × 4–16 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate or 4-cleft; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing broadly elliptic to orbicular, 1.8–2.5 cm; lateral wings smaller. $2n = 38^*$.

• Shaded rocky slopes; 300–400 m. Taiwan (Nantou).

Similar to *Begonia chitoensis*, this species can be distinguished by its smaller stature (often acaulescent), reddish purple petiole, and glabrous, succulent leaf blade with reddish purple veins abaxially.

15. *Begonia brevisetulosa* C. Y. Wu, Acta Phytotax. Sin. 33: 265. 1995.

短刺秋海棠 duan ci qiu hai tang

Herbs. Rhizomes 5–8 mm in diam. Leaves basal; stipules membranous, caducous; petiole purple-red, 4.5–11 cm, densely brown villous; blade abaxially pale, adaxially yellow-green, oblong-ovate, asymmetric, 5.5–12 × 3.5–10.2 cm, abaxially sparsely shortly setose, adaxially densely hispidulous, venation palmate, 6(or 7)-veined, base slightly oblique, cordate, margin irregularly sharply serrulate, apex caudate-acuminate. Inflorescences 10.2–12.5 cm tall, densely hirsute; bracts abaxially hairy. Staminate flowers: tepals 4, outer 2 broadly ovate, ca. 12 × 8 mm, abaxially hirsute, inner 2 oblong, ca. 8 × 3 mm; sta-

mens numerous; filaments free, ca. 1 mm; anthers oblong, ca. 1 mm. Pistillate flowers unknown. Immature capsule nodding, narrowly obovoid, 1.5–1.8 cm, pilose, 2-loculed, placentae axile, bilamellate, unequally 3-winged; abaxial wing ovate-lanceolate, ca. 1.5 × 1 cm, apex rounded; lateral wings smaller.

- SW Sichuan (Muli).

This species is known only from type gathering. It is similar to *Begonia augustinei* but differs by its yellow-green leaf blade with sharply serrulate margin.

16. *Begonia* × *buiumontana* Y. Yamamoto, J. Soc. Trop. Agric. 5: 353. 1933.

武威秋海棠 wu wei qiu hai tang

Begonia fenchihuensis S. S. Ying.

Herbs, erect, 40–125 cm tall, rhizomatous. Rhizomes short, stout. Stems glabrous or sometimes pilose. Leaves cauline or rarely basal; stipules caducous, ovate to broadly ovate, to 2.3 × 1.8 cm, glabrous, margin entire, apex acuminate; petiole 2–5 cm, sparsely hirsute; blade asymmetric, ovate-lanceolate or ovate, 8–22 × 4–8 cm, densely scabrous-hirsute, venation palmate-pinnate, 5–8-veined, base oblique, cordate, margin irregularly serrate, apex caudate-acuminate. Inflorescences glabrous; peduncle 5–7 mm; bracts caducous, narrowly ovate to ovate, ca. 2.4 × 1.7 cm, glabrous, margin entire, apex mucronate to acuminate. Staminate flowers: tepals 4, pink, outer 2 obovate, 1.2–1.4 × 0.8–1.3 cm, abaxially hirsute, inner 2 oblanceolate to narrowly obovate, 6–13 × 4–6 mm; stamens numerous; filaments free. Pistillate flowers: tepals 5 (or 6), pink, subequal to unequal, oblanceolate to orbicular, ca. 1.8 × 0.8 cm; ovary triangular, scabrous-hirsute, 2- or 3-loculed; placentae bilamellate; styles 2 or 3; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing triangular, 1.2–1.9 × 1.1–1.6 cm; lateral wings 4–6 mm. $2n = 30^*$.

- Forests; 1000–1600 m. S Taiwan.

This is a natural hybrid between *Begonia palmata* and *B. taiwaniana* (Peng & Chen, Ann. Missouri Bot. Gard. 78: 995–1001. 1991).

17. *Begonia cathayana* Hemsley, Bot. Mag. 134: t. 8202. 1908.

花叶秋海棠 hua ye qiu hai tang

Herbs, erect, to 60 cm tall. Rhizomes poorly developed. Stems often branched, puberulous. Leaves cauline; stipules lanceolate, ca. 1 cm, abaxially villous, apex acuminate and cuspidate; petiole 3.5–9.8 cm, densely puberulous; blade abaxially pale green to red-purple, adaxially dark green with a red-purple V-shaped band, ovate to broadly ovate, asymmetric, 9–14 × 7–10.8 cm, densely puberulous, occasionally sparsely long hairy, venation palmate-pinnate, base oblique, cordate, margin denticulate, very shallowly lobed; lobes triangular, apex acute. Inflorescences puberulous; peduncle 5–6.1 (–11) cm; bracts caducous, puberulous, apex acuminate. Staminate flowers: pedicel ca. 1.3 cm; tepals 4, pink or orangish, outer 2 broadly ovate, 1.7–2 × ca. 1.2 cm, outside villous, inner 2 oblong to ovate, ca. 1.4 × 5–7 mm; stamens numerous; filaments ca. 1 mm; anthers oblong-obovoid, ca. 1 mm. Pistillate flowers: pedicel ca. 1.7 cm; tepals 5, pink or orangish, subequal, oblong to broadly ovate, abaxially villous; ovary pubescent, 2-loculed; placentae

axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, obovoid-oblong, 1.8–2.1 cm, unequally 3-winged; adaxial wing broadly ligulate or falcate, 1.2–1.5 × 1.2–1.8 cm, apex rounded; lateral wings smaller. Fl. Aug, fr. Sep. $2n = 20^*$.

Scrubby vegetation or forests, in shaded environments; 800–1500 m. S Guangxi, SE Yunnan [Vietnam].

Similar to *Begonia palmata*, this species differs by its short, stout rhizome, lack of leaves on the rhizome, erect stem, and very shallowly divided leaves. Either pink or orangish flowers were observed on plants of this species.

18. *Begonia cavaleriei* H. Lévillé, Repert. Spec. Nov. Regni Veg. 7: 20. 1909.

昌感秋海棠 chang gan qiu hai tang

Begonia cavaleriei var. *pinfaensis* H. Lévillé; *B. esquirolii* H. Lévillé; *B. nymphaeifolia* T. T. Yu.

Herbs, rhizomatous. Rhizomes elongate, 5–15 mm in diam. Leaves basal; stipules caducous, broadly ovate to reniform, 8–12 × 8–10 mm; petiole 7–25 cm, glabrous; blade peltate, nearly symmetric, ovate or broadly elliptic, 8–15 (–22) × 5–13 (–19) cm, thickly papery, glabrous, venation palmate, base obtuse, margin slightly repand, apex acuminate to caudate. Inflorescences to 30 cm tall, glabrous; bracts reniform to fan-shaped, 8–15 × 12–16 mm, glabrous, apex emarginate; flowers fragrant. Staminate flowers: pedicel ca. 1 cm; tepals 4, white to pinkish, outer 2 broadly ovate to ovate, 8–20 × 9–15 mm, glabrous, inner 2 oblong, 1.2–4.1 × 4.4–7.1 mm; stamens 58–72; filaments free, 0.7–2 mm; anthers obovoid to oblong, 0.7–1.1 mm, apex rounded or slightly emarginate. Pistillate flowers: pedicel 2–3 cm; tepals 3, outer 2 broadly ovate or suborbicular, 1.1–1.8 × 1.4–1.7 cm, glabrous, inner 1 oblong, 7.8–8.5 × ca. 4 mm; ovary oblong, to 2 mm, glabrous, 3-loculed; placentae axile, bilamellate; styles 3, to 4.6 mm, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, oblong, to 2.9 mm, unequally 3-winged; adaxial wing larger, lunate, 7–8 mm; lateral wings smaller. Fl. May–Jul, fr. Jul. $2n = 30^*$.

Forests, on limestone rocks; 700–1300 (–1800) m. Guangxi, Guizhou, Yunnan [Vietnam].

19. *Begonia cehengensis* T. C. Ku, Acta Phytotax. Sin. 33: 254. 1995.

册亨秋海棠 ce heng qiu hai tang

Herbs, erect. Tubers globose, 6–8 mm in diam. Stems 10–16 (–20) cm tall, subglabrous. Leaves mostly cauline; stipules caducous, membranous; petiole 4–8 cm, subglabrous; blade brownish on veins, broadly ovate or suborbicular, asymmetric, 7–8 × ca. 6 cm, papery, very thin when dried, subglabrous or sparsely hispidulous, venation palmate, base slightly oblique, rounded, margin shallowly crenate, apex acute. Inflorescences 2–4-flowered, glabrous; peduncle 3–5 cm; bracts caducous, lanceolate, membranous. Staminate flowers: pedicel 4–10 mm; tepals 2, white, depressed-ovate, ca. 8 × 10 mm; stamens numerous; filaments ca. 1 mm, free; anthers obovoid, ca. 1 mm. Pistillate flowers: tepals 2, white, unequal, one depressed-ovate, ca. 8 × 10 mm, other one broadly ovate, ca. 8 × 6 mm; ovary

obovoid, glabrous, 3-loculed, apex with beak ca. 3 mm; placenta axile, bilamellate; style 3, free; stigmas U-shaped. Capsule pendulous, obovoid, 5–7 mm, subequally 3-winged; wings obovate-triangular, ca. 5 mm. Fl. Aug, fr. Sep.

- 700–800 m. Guizhou (Ceheng).

This species is known only from the type gathering.

20. *Begonia ceratocarpa* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 21: 13. 1999.

角果秋海棠 jiao guo qiu hai tang

Herbs, acaulescent, rhizomatous. Rhizomes 5–15 mm in diam. Leaves all basal; stipules ovate-oblong, 1.8–2.5 × 0.9–1.1 cm, margin subentire, ciliate, apex acuminate; petiole to 30 cm, densely appressed pubescent; blade ovate-oblong, asymmetric, 14–23 × 7–12 cm, abaxially villous, adaxially glabrous, venation palmate-pinnate, base oblique, cordate, margin slightly repand and slightly crenate, undivided or very shallowly divided into 2 or 3 lobes, apex acuminate. Inflorescences axillary, racemose at base, to 10(–20) cm tall, glabrous or remotely pubescent; peduncle 5–6 cm; bracts lanceolate, 7–8 × 2–3 mm, abaxially pilose, apex acuminate. Staminate flowers: pedicel 7–12 mm, pilose; tepals 4, pink, glabrous or minutely appressed pubescent, outer 2 broadly ovate, 10–17 × 8–12 mm, inner 2 obovate-lanceolate, ca. 12 × 4–5 mm; stamens 17 or 18; filaments 2–3.4 mm, free; anthers obovoid-oblong, 1.6–2 mm, apex obtuse. Pistillate flowers: pedicel 5–7 mm; tepals 5, pink, glabrous or minutely appressed pubescent, unequal, largest broadly obovate, 9–15 × 7–10 mm, smallest oblong, 5–12 × 3–6 mm; ovary minutely appressed pubescent, 3-loculed; placenta axile, bilamellate; styles 3, fused to halfway; stigmas 2-cleft, spiraled. Fruit berrylike, rhomboid, indehiscent, 3-horned. $2n = 20^*$.

Broad-leaved forests by streams; 300–400 m. Yunnan (Hekou) [Vietnam].

This species is similar to *Begonia balansana* Gagnepain, which is endemic to N Vietnam, but differs in that the plants are monoecious and the ovary is 3-loculed.

21. *Begonia chingii* Imscher, Mitt. Inst. Allg. Bot. Hamburg 10: 519. 1939.

凤山秋海棠 feng shan qiu hai tang

Herbs, deciduous. Tubers 3–15 mm in diam. Leaves 1(–3), basal or on very short stem; stipules triangular-ovate, 3.9–1.2 cm, margin ciliate, apex cuspidate; petiole 6.8–13 cm, pubescent; blade ovate to broadly ovate, nearly symmetric, 7–14 × 5–9 cm, very thin when dried, villous, venation palmate-pinnate, base cordate, margin serrulate, apex acute or acuminate. Inflorescence terminal, cymose, 6–20 cm; bracts oblong, 3.4–7.5 × 1.5–2.5 mm, margin ciliate. Staminate flowers: pedicel 6.5–34 mm; tepals 4, outer 2 ovate, 9.5–15.7 × 7.5–14 mm, abaxially sparsely red pubescent, inner 2 oblong, 6.1–13.1 × 1.9–7.1 mm, glabrous; stamens 10–40; filaments 0.8–2.3 mm, fused at base; anthers oval, 0.5–1 mm. Pistillate flowers: tepals 3, outer 2 broadly ovate, 6.2–9.3 × 5–8.6 mm, abaxially red hairy, inner 1 oval, 5.7–7.5 × 3.1–4.7 mm; ovary oval, ca. 3.7 × 2.5 mm, hairy, 3-loculed; placenta axile, undivided; styles 3, 2.6–4.5 mm, fused at base; stigmas 2-cleft, spiraled. Capsules pendu-

lous; unequally 3-winged; abaxial wing triangular, 4–13 mm; lateral wings smaller.

- Limestone hills or caves; 200–800 m. Guangxi.

This species resembles *Begonia fimbripila* but differs by its pubescent tepals and undivided placenta.

22. *Begonia chishuiensis* T. C. Ku, Acta Phytotax. Sin. 33: 267. 1995.

赤水秋海棠 chi shui qiu hai tang

Herbs, rhizomatous. Rhizomes 4–6 mm in diam. Leaves basal; stipules membranous, caducous; petiole 6–9 cm, densely brown hirsute; blade narrowly ovate to broadly lanceolate, slightly asymmetric, 4.5–10 × 3–5 cm, abaxially hirsute, adaxially hispidulous and hirsute, venation palmate-pinnate, 5- or 6-veined, base shallowly cordate, margin minutely denticulate, apex caudate-acuminate. Inflorescences 9–15 cm tall, 2–4-flowered, glabrous; bracts caducous. Staminate flowers: pedicel 1–1.3 cm; tepals 2 or ?3, broadly ovate, ca. 10 × 9 mm; stamens numerous; filaments free, ca. 1 mm; anthers oblong, ca. 1 mm. Pistillate flowers: pedicel 1–1.3 cm; tepals 2 or ?3, oblong-obovate, ca. 1.6 × 1 cm; ovary ovoid, glabrous or subglabrous, 2-loculed; placenta axile, bilamellate; styles 2, stigmas 2-cleft, spiraled. Capsule nodding, oblong, ca. 9 mm, unequally 3-winged; abaxial wing broadly falcate, ca. 1.3 × 0.8 cm, apex rounded; lateral wings smaller, lunate. Fl. Sep.

- On moist rocks. Guizhou (Chishui).

This species is known only from the type gathering.

23. *Begonia chitoensis* T. S. Liu & M. J. Lai, Fl. Taiwan 3: 793. 1977.

溪头秋海棠 xi tou qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, to 2 cm in diam. Stems 40–95 cm tall. Leaves basal and cauline; stipules ovate to very broadly ovate, to 2.6 cm, glabrous, margin entire, apex acuminate, caducous; petiole 10–45 cm; blade broadly ovate to orbicular, asymmetric, 9–34 × 7–29 cm, venation palmate-pinnate, abaxially subglabrous to sparsely hairy, adaxially subglabrous, base obliquely cordate, margin serrulate, undivided or very shallowly divided, apex acuminate to caudate. Inflorescences 12–40 cm, subglabrous; peduncle to 31 cm; bracts caducous, ovate to broadly ovate, to 2.5 × 1.9 cm, margin entire, apex acute. Staminate flowers: tepals 4, pink, outer 2 obovate to orbicular, 1.1–2.8 × 1–2.6 cm, inner 2 oblanceolate to obovate, 1–2.6 cm × 4–13 mm; stamens 78–142; filaments free, 0.8–2.4 mm; anthers obovoid, 2–2.3 mm. Pistillate flowers: ovary ellipsoid, glabrous, 2-loculed; placenta axile, bilamellate; tepals 5, unequal, oblanceolate to orbicular, largest 0.9–2.6 × 0.8–2.3 cm, smallest 0.8–2.4 cm × 4–11 mm; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing broadly elliptic to orbicular, 1.9–3.2 × 1.1–2.2 cm; lateral wings smaller, 4–6 mm. Fl. Jun–Oct. $2n = 38^*$.

- Shaded moist broad-leaved forests; 400–2200 m. C and N Taiwan.

This species is similar to *Begonia formosana* but differs by the abaxial wing of the capsule, which is broadly elliptic to orbicular, 1.9–

3.2 × 1.1–2.2 cm.

24. *Begonia chuyunshanensis* C. I. Peng & Y. K. Chen, Bot. Bull. Acad. Sin. 46: 258. 2005.

出云山秋海棠 *chu yun shan qiu hai tang*

Herbs, erect. Rhizomes poorly developed. Stems 40–85 cm tall, glabrous. Leaves cauline; stipules caducous, lanceolate to ovate, to 2.1 cm, glabrous, margin entire, apex acuminate; petiole 6–30 cm, glabrous; blade ovate to narrowly ovate, asymmetric, 12–27 × 5–14 cm, both surfaces sparsely scaberulous, venation palmate-pinnate, 7–9-veined, base cordate, margin irregularly serrulate or denticulate, often slightly undulate, apex acuminate to cuspidate. Inflorescences 5–16 cm; peduncle to 13 cm; bracts caducous, narrowly ovate to ovate, to 2.3 × 1.4 cm, glabrous, margin entire, apex acuminate. Tepals white or very faintly pinkish. Staminate flowers: tepals 4, outer 2 broadly obovate to orbicular, 9–24 × 7–21 mm, inner 2 oblanceolate to narrowly obovate, 7–18 × 4–8 mm; stamens 98–137; filaments 0.5–2.1 mm; anthers narrowly oblong to oblanceolate, 2.9–3.2 mm. Pistillate flowers: tepals 5 (or 6), unequal to subequal, narrowly obovate to broadly obovate, largest 9–21 × 8–18 mm, smallest 8–19 × 4–9 mm; ovary glabrous, 3-loculed; placenta axile, bilamellate; styles 3, 4.9–5.3 mm, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing triangular, 1.8–2.4 cm; lateral wings much smaller. *2n* = 52*.

- Shaded moist broad-leaved forests; 500–1600 m. S Taiwan.

This species is similar to *Begonia lukuana* but differs by its larger anthers and the leaves, which are pale green on both surfaces.

25. *Begonia circumlobata* Hance, J. Bot. 21: 203. 1883.

周裂秋海棠 *zhou lie qiu hai tang*

Herbs, rhizomatous. Rhizomes elongate, 6–21 mm in diam. Leaves basal; stipules ovate, 5–8 × 3–5.5 mm, glabrous, margin entire, apex acuminate and apiculate; petiole 8–43 cm, glabrous to densely villous; blade broadly ovate to obovate-orbicular, 10–24 cm, sparsely hispidulous, sparsely strigose on veins, venation palmate, base subtruncate or shallowly cordate, margin irregularly denticulate, distinctly divided; lobes 5 or 6, apex acuminate. Inflorescences 5–25 cm tall; bracts oblong, 0.9–1.4 cm × 3–11 mm, glabrous, margin entire. Staminate flowers: pedicel 1.5–4.6 cm; tepals 4, white to pink, outer 2 broadly ovate, 1–1.6 × 9–1.4 cm, abaxially sparsely brown hairy, inner 2 oblong, 0.8–1.3 cm × 5–8 mm; stamens ca. 100; filaments 1–2.9 mm; anthers obovoid, 0.9–1.6 mm. Pistillate flowers: pedicel 8–17 mm; tepals 5, unequal, largest suborbicular, 1.6–1.8 cm × 8–11 mm, smallest oblong, ca. 12 × 6 mm; ovary pilose, 2-loculed; placenta axile, bilamellate; styles 2, fused to half-way; stigmas 2-cleft, spiraled. Capsule nodding, obovoid, ca. 1.3 cm × 5–6 mm, unequally 3-winged; abaxial wing ligulate, 1.2–2.1 cm, apex obtuse; lateral wings smaller. Fl. Jun, fr. Jul.

- Shaded moist forests, scrubby vegetation; 200–1100 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan.

This species is similar to *Begonia pedatifida* but differs by lacking lobules.

26. *Begonia cirrosa* L. B. Smith & Wasshausen, Phytologia 52: 442. 1983.

卷毛秋海棠 *juan mao qiu hai tang*

Begonia crispula T. T. Yu, Notes Roy. Bot. Gard. Edinburgh 21: 38. 1951, not Brade (1950).

Herbs, rhizomatous. Rhizomes elongate, 8–15 mm in diam. Leaves all basal; stipules pubescent; petiole 9–12 cm, densely villous; blade abaxially pale green or reddish, obliquely broadly ovate to suborbicular, 6–18 × 6–15 cm, papery, abaxially pilose or hirsute-pilose, more densely so on veins, adaxially setose-pilose, basally 5–7-veined, tertiary veins weakly percurrent, base oblique, deeply cordate, margin denticulate, apex shortly caudate. Inflorescences with 8–12 flowers in a dichasial cyme; peduncle 15–24 cm, villous; pedicel 3–3.5 cm, red hirsute-hispid; bracts oblong to ovate-lanceolate, 4–8 mm, abaxially pubescent, margin ciliate, apex obtuse to acuminate. Staminate flowers: tepals 4, outer 2 broadly ovate to obovate, 7–17 × 5–22 mm, inner 2 oblong, 4–14 × 2–9 mm; stamens 30–40; filaments nearly free; anthers oblong-obovoid, 1–1.5 mm. Pistillate flowers: tepals 3, outer 2 broadly ovate, 6–14 × 5–18 mm, inner 1 oblong or obovate, 5–8 × 4–6 mm; ovary oblong, red hispid-hirsute, 1-loculed with parietal placenta; styles 3. Capsule nodding, oblong to ellipsoid, 1–2 cm, unequally 3-winged, larger one lunate, 4–7 mm. Fl. Mar–Apr, fr. Apr.

- Limestone forests; on rocks in shaded environments; ca. 1000 m. Guangxi (Jingxi, Napo), Yunnan (Funing).

27. *Begonia clavicaulis* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 500. 1939.

腾冲秋海棠 *teng chong qiu hai tang*

Herbs, erect. Rhizomes short, stout, ca. 2.5 cm in diam. Stems ca. 60 cm. Leaves all cauline; stipules caducous; petiole 4–14 cm, sparsely villous; blade oblong-ovate or oblong, asymmetric, 9–10 × 4.5–9 cm, very thin when dried, sparsely hirsute, venation palmate, 8-veined, base oblique, deeply cordate, margin denticulate, shallowly divided, 6- or 7-lobed, apex acuminate. Inflorescences few flowered, glabrous; bracts broadly elliptic to oblong, 4.6–8 × 5–5.8 mm, margin ciliate, apex acute or obtuse. Staminate flowers: pedicel 4–6 mm; tepals 4, outer 2 broadly ovate, 8–9 × 6–8 mm, outside sparsely pubescent, inner 2 broadly elliptic, 5–6 × 4–5 mm, glabrous; stamens numerous; filaments 1.3–1.8 mm, fused at base; anthers obovoid, 0.4–0.6 mm, apex emarginate. Pistillate flowers: tepals 5, unequal, largest one broadly ovate, 6–7.3 × 4.5–7 mm, outside pubescent, smallest one broadly elliptic, 5–6 × ca. 4 mm, glabrous; ovary obliquely elliptic, 4–4.8 × 3–3.8 mm, unequally 3-winged, 3-loculed; placenta axile, bilamellate; styles 3, free; stigmas 2-cleft, spiraled. Mature fruit not available.

- Shaded moist environments; ca. 2100 m. Yunnan (Tengchong).

This species is similar to *Begonia wenshanensis* but differs by being a larger plant with oblong-ovate or oblong leaf blades.

28. *Begonia coptidifolia* H. G. Ye et al., Bot. Bull. Acad. Sin. 45: 259. 2004.

阳春秋海棠 *yang chun qiu hai tang*

Herbs, rhizomatous, erect. Rhizomes slender. Stems 10–15(–30) cm. Leaves basal and cauline; stipules persistent, triangular, 5–8 × 3–4 mm, margin entire, apex long cuspidate; petiole 5–13 cm, sparsely setulose; blade ovate to suborbicular, nearly symmetric, 10–18 × 8–15 cm, sparsely setulose, venation palmate, base cordate, margin dentate, palmately 3-cleft to base, pinna bipinnatifid; lobules narrowly elliptic-lanceolate. Inflorescences glabrous; peduncle 3.5–4(–7) cm; bracts narrowly triangular, ca. 10 × 3 mm, apex acute. Staminate flowers: pedicel ca. 1.3 cm; tepals 4, white, glabrous, outer 2 broadly ovate, ca. 1.2 × 1.3 cm, inner 2 ovate, ca. 12 × 8 mm; stamens numerous; filaments fused to more than halfway; anthers obovoid. Pistillate flowers: pedicel pale pinkish, 1.4–1.7 cm; tepals 5, white, glabrous, unequal, largest orbicular, ca. 1.5 × 1.4 cm, smallest narrowly obovate, ca. 12 × 8 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing ligulate or falcate, 1.7–2.3 cm, apex rounded. Fl. Jul–Sep, fr. Oct–Dec. $2n = 22^*$.

- Broad-leaved forests, on mossy rocks along shaded stream banks; ca. 600 m. Guangdong (Yangchun).

This species is very rare and known only from the type locality.

29. *Begonia coptidimontana* C. Y. Wu, Acta Phytotax. Sin. 33: 251. 1995.

黄连山秋海棠 huang lian shan qiu hai tang

Herbs, erect. Rhizomes short, stout. Stems reddish brown to reddish, 70–120 cm, glabrous, branching twice or more. Leaves basal and cauline; stipules caducous, lanceolate, ca. 5 mm, membranous, glabrous; petiole 3–5 cm, glabrous or subglabrous; blade ovate-lanceolate, 5–12 × 1.8–4 cm, both surfaces sparsely hirsute, venation palmate-pinnate, base obliquely cordate, margin remotely serrulate, apex caudate-acuminate. Inflorescences glabrous, with few flowers; peduncle 2.5–5 cm, slender; bracts caducous, oblong, 3–4 × ca. 1 mm, membranous. Staminate flowers: tepals 4, pink, outer 2 broadly ovate, ca. 8 × 6 mm, outside sparsely hairy, inner 2 oblong, 5–8 × 3.5–4(–6) mm, glabrous; stamens numerous; filaments free, 1–1.5 mm; anthers obovoid, ca. 1 mm. Pistillate flowers: tepals 5, unequal, largest broadly ovate, ca. 1.2 × 1.1 cm, outside sparsely hairy, smallest oblong, ca. 8 × 5 mm, glabrous; ovary obovoid-oblong, sparsely hairy when young, 3-loculed; placentae axile, bilamellate; styles 3, free; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing falcate, 1.3–2 × ca. 1 cm; lateral wings triangular, 5–7 mm. Fl. Aug, fr. Sep–Oct.

- Mixed bamboo, banana, and broad-leaved forests, on rocks in shaded moist environments along streams; 1700–2200 m. Yunnan (Lüchun, Wenshan).

This species resembles *Begonia taiwaniana* in the well-branched stem and lanceolate leaves, but is distinguishable by the remotely serrulate leaves and hairy tepals and ovary.

30. *Begonia crocea* C. I. Peng, Bot. Stud. 47: 89. 2006.

橙花秋海棠 cheng hua qiu hai tang

Herbs, acaulescent. Rhizomes elongate, to 2 cm in diam. Stipules caducous, triangular, to 1.5 × 1 cm, glabrous or pilose

on midvein, margin entire, apex cuspidate; petiole green, 34–41 × 0.9–1 cm, densely pilose; blade broadly ovate, asymmetric, to 30.5 × 24 cm, abaxially sparsely pilose, adaxially glabrous, venation palmately 9- or 10-veined, base oblique, deeply cordate, margin remotely minutely serrulate, apex acute. Inflorescences 16–34 cm; peduncle 12.5–25 cm × 4–5.8 mm, glabrous; bracts ovate, to 2.1 × 1.2 cm, glabrous, margin entire, apex acute. Flower buds subglobose. Staminate flowers: pedicel 1.2–1.8(–3.1) cm; tepals 4, orange-red, glabrous, outer 2 ovate, 1.1–1.8 × 1.1–1.4 cm, inner 2 elliptic or narrowly obovate, 1.1–1.8 × 0.9–1.1 cm; stamens ca. 100 or more; filaments 2.5–3.5 mm, fused to halfway; anthers fusiform to obovoid, 1.5–4.5 mm, apex acuminate. Pistillate flowers: pedicel 1.3–1.5 cm; tepals 5, orange-red, glabrous, subequal, obovate, 1–1.2 × 0.8–1 cm; ovary ellipsoid, glabrous, 2-loculed; placentae axile, bilamellate; styles 2, 5–5.6 mm, free; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing narrowly oblong, 1.7–1.8 cm × 8–8.5 mm, apex obtuse; lateral wings smaller, 6.5–7 mm.

- Forests; ca. 1200 m. S Yunnan (Jiangcheng).

This species is similar to *Begonia megalophyllaria* but can be distinguished by the hairy habit and orange-red tepals.

31. *Begonia crystallina* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 360. 2005.

水晶秋海棠 shui jing qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, 6–12 cm, 0.8–1 cm in diam.; internodes 0.2–0.3 mm, hirsute-pilose. Leaves all basal; stipules reflexed, triangular, 5–7 × 3–4 mm, glabrous, apex acuminate; petiole 17–25 cm, hirsute-villous; blade broadly ovate, 12–23 × 11–23 cm, thickly papery, abaxially densely strigose-pilose on veins, adaxially moderately setulose, hairs with slightly tuberculate bases, basally 6- or 7-veined, tertiary veins percurrent and densely reticulate, base obliquely cordate, margin serrulate and ciliate, apex obtuse. Inflorescences 10–15 flowered in a dichasial cyme; peduncle 10–18 cm, sparsely hirsute; bracts ovate, 2–3 × 1.5–2 mm, subglabrous, margin ciliate, apex acuminate. Staminate flowers: pedicels 1–1.1 cm, subglabrous; tepals 4, glabrous, outer 2 pink, orbicular, 0.9–1 cm in diam., inner 2 pinkish, narrowly oblong, 10–11 × ca. 2 mm; stamens numerous; filaments nearly free; anthers oblong, 0.8–0.9 × 0.6–0.7 mm, apex emarginate or orbicular. Pistillate flowers: tepals 3, glabrous, outer 2 pink, orbicular, 7–8 mm in diam., inner 1 pinkish, oblong; ovary coniform, ca. 1 cm, glabrous, 3-winged, 1-loculed with parietal placentation; styles 3, free, ca. 1 mm. Capsule nodding, broadly ovoid, ca. 6 × 6 mm; wings 3, lunate, larger one 2–3 mm, apex subtruncate. Fl. Aug–Jan.

- On crystalline rocks in limestone caves. Yunnan (Malipo).

32. *Begonia cucurbitifolia* C. Y. Wu, Acta Phytotax. Sin. 33: 268. 1995.

瓜叶秋海棠 gua ye qiu hai tang

Herbs, rhizomatous. Rhizomes 8–11 mm in diam. Stems ca. 4 cm, glabrous. Leaves all basal; stipules caducous, lanceolate, ca. 1.2 cm, membranous, glabrous; petiole 22–26 cm, glabrous; blade orbicular, nearly symmetric, 14–16.2 × 14–16 cm,

subleathery, both surfaces subglabrous, venation palmate, 3- or 4-veined, base shallowly cordate to obtuse, margin remotely and minutely serrulate, divided to 1/2 of leaf length or more, 3- or 4-lobed; lobes oblong or somewhat ovate, apex acuminate to caudate. Inflorescences to 27 cm tall, subglabrous; bracts caducous. Staminate flowers: pedicel ca. 1.5 cm; tepals 4, white, glabrous, outer 2 narrowly ovate or triangular-ovate, ca. 2.5×1.3 cm, inner 2 oblong, ca. 15×5 mm, apex acute. Pistillate flowers not seen. Capsule nodding, ellipsoid, ca. 17×8 mm, glabrous, 2-loculed, unequally 3-winged; abaxial wing ovate-oblong, ca. 1.7×1.4 cm, apex rounded; lateral wings lunate, 5–7 mm; placentae axile, bilamellate. Fl. Aug, fr. Aug. $2n = 44^*$.

• Forests, on rocks, in moist environments in valleys; ca. 400 m. Yunnan (Hekou).

This species is similar to *Begonia paucilobata* but differs by its 3- or 4-lobed leaves.

33. *Begonia curvicarpa* S. M. Ku et al., Bot. Bull. Acad. Sin. 45: 353. 2004.

弯果秋海棠 wan guo qiu hai tang

Herbs, rhizomatous. Rhizome elongate, sparsely hairy; internodes 1.5–5.5 cm. Leaves all basal; stipules triangular, ca. 10×9 mm, margin entire; petiole 7–17 cm, hirsute-villous; blade obliquely broadly ovate to orbicular, $4-19 \times 3-12$ cm, papery, abaxially villous, adaxially pilose, basally 6- or 7-veined, tertiary veins weakly percurrent and reticulate, base obliquely deeply cordate, margin denticulate or dentate and ciliate, apex acute to acuminate. Inflorescences axillary, flowers 3–5 in 1–3 times branched dichasial cyme; peduncle 9–12 cm, glabrous; bracts oblong, elliptic to ovate, $4-10 \times 3-6$ mm, margin serrate-ciliate, apex obtuse. Staminate flowers: tepals 4, glabrous, outer 2 broadly ovate to ovate-orbicular, $1.3-1.5 \times 1.5-1.7$ cm, inner 2 oblanceolate, ca. 12×6 mm; stamens 35–40; filaments nearly free, ca. 2 mm; anthers obovoid-oblong, ca. 1.2 mm, apex subemarginate. Pistillate flowers: tepals 3, glabrous, outer 2 broadly ovate to ovate-orbicular, $1.4-1.7 \times 1.5-1.7$ cm, inner 1 obtusulate to oblanceolate; ovary glabrous, \pm curved, 1-loculed with parietal placentation; styles 3, fused to 1/3. Capsule nodding, manifestly crooked, $11-14 \times 8-9$ mm, glabrous, unequally 3-winged; abaxial wing 8–8.5 mm. Fl. Aug–Nov, fr. Oct–Dec. $2n = 30^*$.

• On limestone rocks or at entrances to semishaded to shaded, slightly moist caves. Guangxi (Rong'an, Yongfu).

34. *Begonia cylindrica* D. R. Liang & X. X. Chen, Bull. Bot. Res., Harbin 13: 217. 1993.

柱果秋海棠 zhu guo qiu hai tang

Herbs. Rhizome elongate. Leaf basal; stipules ovate-triangular, 6–11 mm, glabrous, apex acuminate and with short awns; petiole reddish, 2–13 cm, sparsely hairy when young; blade peltate, broadly ovate or suborbicular, slightly asymmetric, $5-11 \times 4.5-8$ cm, thickly papery, glabrous or subglabrous, venation palmate, 6-veined, base oblique, rounded, margin remotely serrate, apex shortly caudate. Inflorescences 4–10 cm tall, shorter than petiole, glabrous; with 2–8 flowers; bracts caducous. Staminate flowers: pedicel 0.8–2 cm; tepals 4, white to

pinkish, glabrous, outer 2 obovate-orbicular, $4-11 \times 4-12$ mm, glabrous, inner 2 narrow, oblong or lanceolate, $3-7 \times 1.2-3$ mm, apex obtuse; stamens 25–50; filaments 0.4–1.1 mm; anthers obovoid to oblong, 0.7–1.5 mm, apex truncate. Pistillate flowers: pedicel 4–8 mm; tepals 3, glabrous, usually persistent at fruiting stage, outer 2 broadly obovate or suborbicular, $4-8 \times 4-8$ mm, inner 1 oblong-obovate, $1.5-5 \times 1-2$ mm; ovary oblong, terete, glabrous, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigma 2-cleft, U-shaped. Fruit berrylike, clavate, descending or deflexed, $1.5-2.4$ cm \times 2–4 mm, wingless. Fl. Jul, fr. Aug.

• Forests, on limestone rocks in shaded moist environments. Guangxi (Longzhou).

35. *Begonia daweshanensis* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 337. 1994.

大围山秋海棠 da wei shan qiu hai tang

Creeping herbs. Rhizome elongate. Stem 5–10(–17) cm. Leaves mostly basal; stipules ovate, 1.3–1.6 cm, pubescent, margin entire, apex cuspidate; petiole 15–30 cm, densely pubescent; blade ovate, asymmetric, $8-12 \times 7-10$ cm, abaxially puberulous, more densely so on veins, adaxially subglabrous to sparsely hairy, venation palmate, base cordate, margin irregularly serrulate, very shallowly lobed, apex caudate-acuminate. Inflorescences puberulous; peduncle ca. 13 cm. Bracts oblong, to 1.2 cm, apex acute. Staminate flowers: pedicel ca. 1.2 cm; tepals 4, pink, outer 2 broadly ovate, ca. 1.8×1.2 cm, outside puberulous, inner 2 oblong, $7-8 \times$ ca. 5 mm, glabrous; filaments 1–1.2 mm; anthers numerous, oblong-obovoid, ca. 1 mm. Pistillate flowers: pedicel ca. 1.2 cm; tepals 5, pink, unequal, $1-1.8 \times 4-10$ cm, abaxially puberulous; ovary puberulous, 2-loculed; placentae axile, bilamellate; styles 2; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing ligulate or falcate, ca. 18×8 mm, apex rounded; lateral wings smaller, ca. 12×6 mm.

• Broad-leaved forests, moist places; 1400–1800 m. Yunnan (Pingbian).

This species resembles *Begonia dryadis* but differs by its well-developed, elongate rhizome and the predominantly basal leaves.

36. *Begonia daxinensis* T. C. Ku, Acta Phytotax. Sin. 35: 45. 1997.

大新秋海棠 da xin qiu hai tang

Begonia zhangii D. Fang & D. H. Qin.

Herbs, rhizomatous. Rhizomes elongate. Leaves all basal; stipules caducous, ovate, 6–12 mm, abaxially villous on veins when young, apex awned; petiole 5–14 cm, sparsely to moderately villous; blade adaxially green, with a whitish ring-shaped belt, obliquely ovate to suborbicular, $10-24 \times 10-17$ cm, herbaceous or papery, abaxially subglabrous or scaberulous, adaxially glabrous, basally 6- or 7-veined, tertiary veins weakly percurrent, base cordate, margin denticulate, apex shortly caudate. Inflorescences axillary; peduncle 13–20 cm, pilose or sparsely villous; flowers white or pinkish, 4–10 in 3–4 times branched dichasial cyme. Staminate flowers: tepals 4, outer 2 broadly elliptic or broadly ovate, $1.2-1.9 \times 1-1.6$ cm, abaxially

glandular pilose, inner 2 obovate or broadly oblanceolate, 12–14 × 4–5 mm, glabrous; stamens 16–27. Pistillate flowers: tepals 3, outer 2 suborbicular, 1–1.5 × 1–1.2 cm, abaxially glandular pilose, inner 1 obovate, 5–7.5 × 2–5 mm; ovary 1-loculed with parietal placentation. Capsule nodding, ovate-oblong, 13–20 × 6–8 mm, glabrous, subequally 3-winged; wings lunate, 3–7 mm. Fl. Mar–Jun, fr. Apr–Jun.

• Limestone hills, shaded rocky places. Guangxi (Daxin, Long'an).

37. *Begonia debaoensis* C. I Peng et al., Bot. Stud. 47: 207. 2006.

德保秋海棠 de bao qiu hai tang

Begonia bonii Gagnepain var. *remotisetulosa* Y. M. Shui & W. H. Chen.

Herbs, rhizomatous. Rhizomes 20–60 cm, slender, 2.5–6 mm in diam.; internodes 1.5–3.5 cm. Leaves basal; stipules triangular to ovate-triangular, 4–9 × 4–6 mm, apex acute or obtuse; petiole 5–12 cm, 1.5–3 mm in diam., villous; blade adaxially green or dark green on veins, otherwise whitish or pale green, broadly ovate or suborbicular, 5–9.5 × 3.6–6.8 cm, basally 5- or 6-veined, tertiary veins percurrent and loosely reticulate. Inflorescences axillary, flowers 4–7 in a dichasial cyme; peduncle 6–15 cm, glabrous; bracts ovate to orbicular, 3–5 × 3–4 mm, margin ciliate. Staminate flowers: pedicel 9–17 mm; tepals 4, outer 2 pink toward margin, whitish in middle, suborbicular, 6–11 × 7–12 mm, inner 2 oblong or narrowly obovate, 8–10 × 3–4 mm; stamens abnormal, base with exposed ovulelike structures, apex forming a stigmalike structure, without anthers. Pistillate flowers: pedicel 7–11 mm, sometimes with a bracteole; tepals 3, caducous or nearly so, outer 2 tepals bicolorous as staminate flowers, suborbicular, 5–11 × 5–11 mm, inner 2 tepals oblong or narrowly obovate, 4–7 × 2.5–3.5 mm, apex obtuse; ovary ellipsoid, 5–8 × 3.7–4.1 mm, unequally or subequally 3-winged, 1-loculed with parietal placentation; abaxial wing lunate, 3–5 × 5–7 mm; styles 3, fused in proximal 1/4. Capsule not developed. Fl. Aug–Jan. $2n = 30^*$.

• Walls of caves at bases of steep limestone hills. W Guangxi (Debao).

38. *Begonia dentatobracteata* C. Y. Wu, Acta Phytotax. Sin. 33: 254. 1995 [*“dentato-bracteata”*].

齿苞秋海棠 chi bao qiu hai tang

Herbs, deciduous. Tubers 1.5–1.9 cm in diam. Leaves 2- or 3-fasciculate on tuber; stipules membranous, caducous; petiole 13–16.5 cm, glabrous or subglabrous; blade oblong-ovate or oblong, slightly asymmetric, 11–14 × 6.9–8.8 cm, abaxially hispidulous on veins, adaxially sparsely hispidulous, base cordate, margin serrulate, undivided, apex caudate-acuminate. Inflorescences terminal, racemose at base, ca. 26 cm tall; bracts oblong to obovate, membranous, apex (2 or) 3–5 toothed. Staminate flowers: tepals 4, pink, outer 2 broadly ovate, 4–5 × 3–3.5 mm, inner 2 oblong, ca. 2.5 × 1 mm; stamens numerous; filaments fused to halfway; anthers oblong, ca. 1 mm. Pistillate flowers: tepals not seen; ovary 3-loculed; placentae axile, bilamellate; styles 3, free; stigmas U-shaped. Capsule pendulous, unequally

3-winged; abaxial wing oblate-orbicular, 7–13 × 7–12 mm, apex acute or obtuse; lateral wings smaller. Fl. Jul, fr. Aug.

• Broad-leaved forests, on rocky cliffs in shaded environments; 1600–1900 m. W Yunnan (Pianma).

This species is similar to *Begonia labordei* and probably can only be separated by its distinctly dentate bracts with 3–5 teeth at the apices.

39. *Begonia dielsiana* E. Pritzl, Bot. Jahrb. Syst. 29: 479. 1900.

南川秋海棠 nan chuan qiu hai tang

Herbs. Rhizome 1.2–3.5 cm in diam. Stem very short. Leaves mostly arising from rhizome; stipules caducous; petiole 16–50 cm, glabrous; blade broadly oblong-ovate, asymmetric, 9–17 × 7–15 cm, both surfaces glabrous or adaxially sparsely hairy, venation palmate, 6-veined, base oblique, deeply cordate, margin remotely serrulate, very shallowly divided, 5–10-lobed; lobes triangular or broadly triangular, apex acuminate. Inflorescences 9–24 cm tall, glabrous; bracts caducous. Staminate flowers: pedicel 2–2.7 cm; tepals 4, white to pinkish, glabrous, outer 2 orbicular or broadly ovate, 2–2.5 × ca. 2 cm, inner 2 oblong, ca. 2 × 1 cm; stamens numerous; filaments 2.5–3 mm; anthers oblong-obovoid, ca. 1.8 mm, apex emarginate. Pistillate flowers: pedicel 2.7–3.1 cm; ovary obovoid, glabrous; unequally 3-winged, 2-loculed; placentae axile, bilamellate; tepals 6, white to pinkish, glabrous, outer 3 narrowly obovate, 2.1–2.3 × 1.3–1.6 cm, inner 3 broadly oblanceolate, 2.3–2.6 × 1.3–1.6 cm; styles 2, 6.2–6.6 mm, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing larger, elliptic to falcate, apex rounded. Fl. Jul.

• On rocks in shaded moist environments by streams or in valleys; 1000–1300 m. Chongqing (Nanchuan), Hubei (Lichuan), Sichuan (Emei Shan).

This species is similar to *Begonia emeiensis* but differs by its glabrous leaves.

40. *Begonia digyna* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 6: 352. 1927.

槭叶秋海棠 qi ye qiu hai tang

Herbs, rhizomatous, 25–37 cm tall. Rhizomes ca. 1 cm in diam. Stems erect or ascending, sparsely hairy. Leaves mostly basal; stipules caducous; petiole 1–2.5 cm, rusty hairy; blade broadly ovate to orbicular, slightly asymmetric, 7–15(–18) × 7–13(–20) cm, thin when dried, sparsely pilose, apex acuminate, venation palmate, base cordate, obliquely cordate, margin serrulate, distinctly lobed, divided to 1/2 of leaf length, 6- or 7-lobed; lobes triangular-ovate, middle lobe divided with 1 lobule. Inflorescences sparsely hairy; peduncle 18–20 cm; bracts caducous. Staminate flowers: pedicel 2.5–3 cm; tepals 4, pink, outer 2 broadly ovate, 1.7–2 × 1.8–2.1 cm, abaxially pilose, inner 2 oblong-obovate, 1.5–2 cm × 9–11 mm; stamens numerous; filaments 1.5–1.8 mm; anthers obovoid-oblong, 1.1–1.5 mm, apex slightly emarginate. Pistillate flowers: pedicel 1.7–2.1 cm, hairy; tepals 5, unequal, largest one broadly ovate, 1.6–2.1 × 1.1–1.4 cm, abaxially villous, smallest one oblong-elliptic, ca. 11 × 7 mm, glabrous; ovary elliptic, 8–10 × 5–6 mm, pilose, 2-loculed; placentae axile, bilamellate; styles 2, 5–6.5 mm; stigmas 2-cleft, spiraled. Capsule nodding, ellipsoid, un-

equally 3-winged; abaxial wing triangular or broadly ligulate, 1.3–1.8 cm × 9–10 mm, apex rounded; lateral wings oblate-triangular. Fl. Jul, fr. Aug.

- Forests; on rocks in shaded moist environments by streams or in valleys; 500–700 m. Fujian, Jiangxi, Zhejiang.

This species is similar to *Begonia edulis* but differs by its sparsely pilose, distinctly lobed leaves.

41. *Begonia discrepans* Irmscher, Bot. Jahrb. Syst. 76: 100. 1953.

细茎秋海棠 xi jing qiu hai tang

Begonia tenuicaulis Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 543. 1939, not A. Candolle (1859).

Herbs. Rhizome unknown. Stem ca. 40 cm, 4–5 mm in diam., brown hairy. Stipules obliquely triangular-ovate, 9–10 × 4–7 mm, abaxially hirsute on veins, apex acute or obtuse. Petiole 0.9–5 cm, sparsely hirsute; blade ovate, asymmetric, 6–12 × 2.9–7.3 cm, adaxially sparsely hirsute, venation palmate-pinnate, 5–7-veined, more densely so on veins, base cordate, margin serrulate, apex acuminate. Inflorescences pilose; peduncle 3.5–6.5 cm; bracts ovate-oblong or ovate, 10–13 × 7–9 mm, membranous, margin and outside pilose, apex acuminate and long cuspidate. Staminate flowers: pedicel ca. 1.6 cm, hispidulous; tepals 4, outer 2 elliptic-ovate, ca. 1.5 × 1.1 cm, outside hirsute, inner 2 broadly ovate, ca. 8.5 × 6.2 mm, glabrous; stamens numerous; filaments 1–1.4 mm; anthers obovoid-oblong, 0.9–1.2 mm. Pistillate flowers: tepals 5, outside hirsute; ovary oblong, subequally 3-winged, 2-loculed; styles 2, fused at base. Capsule not seen.

- Yunnan (Tengchong).

The description is based on the type gathering.

42. *Begonia discreta* Craib, Bull. Misc. Inform. Kew 1930: 410. 1930.

景洪秋海棠 jing hong qiu hai tang

Herbs, deciduous. Tubers ca. 7 mm in diam. Leaves basal; stipules caducous; petiole 3–8.5 cm; blade oblong or oblong-ovate, asymmetric, 4.5–13 × 3.5–9 cm, abaxially sparsely brown pilose on veins, adaxially sparsely brown pilose or subglabrous, venation palmate, 7(–9)-veined, base obliquely cordate, margin serrulate, apex acuminate or acute. Inflorescences terminal, 3.5–7 cm tall, subglabrous; bracts caducous. Staminate flowers: pedicel 5–10 mm; tepals 4, outer 2 elliptic, ca. 11 × 7 mm, outside remotely villous, inner 2 oblong-oblongate, ca. 10 × 2.5 mm, glabrous; stamens 12; filaments fused at base; anthers ca. 1 mm. Pistillate flowers: pedicel 5–10 mm; tepals similar to those of staminate flowers, but slightly smaller; ovary 3-loculed; placentae axile, bilamellate; styles 3, ca. 2 mm, fused to halfway; stigmas lunate. Capsule pendulous, narrowly obovoid, ca. 6 × 5 mm, unequally 3-winged; abaxial wing triangular, ca. 7 × 5 mm; lateral wings smaller. Fl. Sep–Oct.

- Scrubby vegetation; ca. 800 m. Yunnan (Jinghong) [Thailand].

The type was collected from Thailand.

43. *Begonia dryadis* Irmscher, Notes Roy. Bot. Gard. Edin-

burgh 21: 41. 1951.

厚叶秋海棠 hou ye qiu hai tang

Herbs. Rhizomes short, stout, 8–24 mm in diam. Stems erect, to ca. 60 cm tall, densely puberulous when young. Leaves cauline; stipules caducous; petiole 18–42 cm, puberulous; blade ovate or broadly ovate, asymmetric, 9–30 × 7.5–24 cm, abaxially sparsely puberulous, more densely so on veins, adaxially subglabrous, venation palmate, 6- or 7-veined, base obliquely cordate, margin remotely and indistinctly denticulate, apex caudate. Inflorescences puberulous when young; peduncle 4–12 cm; bracts rhomboid-ovate, 1.5–1.9 cm × 4–18 mm, membranous, puberulous, apex acute. Staminate flowers: pedicel 1.4–2.1 cm; tepals 4, pink, outer 2 narrowly ovate, 0.9–1.5 × 0.8–2 cm, abaxially puberulous, inner 2 oblong, 8–15 × 5–15 mm; stamens 100–160; filaments 1–6.7 mm; anthers oblong, 0.7–2.5 mm. Pistillate flowers: pedicel ca. 1.8 cm; ovary puberulous, 2-loculed; placentae axile, bilamellate; tepals 5(or 6), largest one broadly ovate, 1.1–1.6 × 1.1–1.3 cm, abaxially puberulous, smallest one elliptic, 10–16 × 7–13 mm; styles 2, 5–6.3 mm, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, ellipsoid, ca. 1.5 cm, unequally 3-winged; abaxial wing ca. 1.8 × 1.2 cm, apex rounded; lateral wings smaller. Fl. Nov–Dec, fr. Dec. $2n = 22^*$.

- Forest understories, by streams in valleys; 600–1200 m. S Yunnan.

This species is similar to *Begonia daweshanensis* but can be distinguished by its short, stout rhizome and the presence of cauline leaves.

44. *Begonia duclouxii* Gagnepain, Bull. Mus. Natl. Hist. Nat. 25: 198. 1919.

川边秋海棠 chuan bian qiu hai tang

Herbs. Rhizomes elongate, 5–7 mm in diam. Leaves basal; stipules oblong, 8–10 mm, apex shortly cuspidate; petiole (7–)8–14 cm, rusty villous; blade ovate, asymmetric, 6–8 × 5–6 cm, abaxially villous, adaxially hairy, hairs to 6 mm, venation palmate, 5–7-veined, base deeply cordate, margin irregularly serrate, apex acute or shortly acuminate. Inflorescences 9–18 cm tall, glabrous; peduncle ca. 15 cm, glabrous; bracts oblong, ciliate. Staminate flowers: pedicel 1.2–1.5 cm; tepals 4, outer 2 ovate-orbicular or broadly ovate, 11–15 × 8–12 mm, abaxially hairy, inner 2 oblong, 8–10 × 2.5–5 mm; stamens numerous; filaments 1–1.5 mm; anthers obovoid-ellipsoid, 1–1.3 mm, apex emarginate. Pistillate flowers: pedicel 1–1.2 cm; ovary villous, 2-loculed; placentae axile, bilamellate; tepals 4 or 5, largest orbicular or broadly ovate, 7–10 × 7–8.5 mm, outside pilose, smallest oblong or obovate-oblong, 6–8 × 3–5 mm, glabrous; styles 2, free or fused to halfway; stigmas 2-cleft, spiraled. Capsule unequally 3-winged. Fl. Jun, fr. Aug.

- 1000–1400 m. NE Yunnan (Suijiang).

45. *Begonia edulis* H. Léveillé, Repert. Spec. Nov. Regni Veg. 7: 20. 1909.

食用秋海棠 shi yong qiu hai tang

Herbs, 40–60 cm tall. Rhizomes elongate, 8–15 mm in

diam. Stems erect, glabrous or subglabrous. Leaves basal and cauline; stipules triangular-lanceolate, 1.2–1.5 cm, membranous, glabrous, apex acuminate; petiole 15–25 cm, subglabrous; blade orbicular or oblate-orbicular, slightly asymmetric, 16–20 × 15–21 cm, abaxially subglabrous or sparsely hairy on veins, adaxially sparsely hairy when young, venation palmate, 6–8-veined, base cordate, margin remotely denticulate, shallowly lobed, divided to ca. 1/3 of leaf length; lobes broadly triangular, apex acuminate. Inflorescences 16–26 cm tall, subglabrous or glabrous; peduncle 4–15 cm. Staminate flowers: pedicel 1.3–2.8 cm; tepals 4, glabrous, outer 2 ovate-triangular, 1.2–1.5 × 1.2–1.6 cm, inner 2 oblong, 11–15 × 7–10 mm; stamens 140–200; filaments 1.3–5.9 mm, fused at base; anthers oblong, 0.8–1.6 mm. Pistillate flowers: pedicel 1.5–2.5 cm; tepals 5 or 6, glabrous, unequal, largest broadly obovate, 1.2–1.9 cm × 8–15 mm, smallest narrowly oblong, 11–20 × 5–14 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, 4.7–5.9 mm; stigmas 2-cleft, spiraled. Capsule nodding, 1.5–1.8 cm; unequally 3-winged; abaxial wing oblong to falcate, 1–1.8 cm; lateral wings smaller. Fl. Jun–Sep, fr. Aug.

Forests; on shaded moist rocks or forest floor; 500–1500 m. Guangdong, Guangxi, Yunnan [Vietnam].

This species is similar to *Begonia palmata* but differs by its glabrous tepals and ovary.

46. *Begonia emeiensis* C. M. Hu ex C. Y. Wu & T. C. Ku, Acta Phytotax. Sin. 33: 273. 1995.

峨眉秋海棠 e mei qiu hai tang

Herbs, perennial. Rhizome terete, oblique, stout, with numerous slender fibrous roots. Stem short, 4(–20) cm tall or stemless. Basal leaf 1 similar to cauline ones, with long petiole; stipules caducous; petiole 17–27 cm, angular, glabrous; blade abaxially pale green, adaxially deep green or brown-green, ovate-oblong, 12–14 × 11–13 cm, abaxially subglabrous, adaxially subglabrous or sparsely hispidulous, palmately 6-veined, base deeply cordate, margin unequally shortly triangularly toothed (teeth apically awned), apex caudate-acuminate. Scape 13–20 cm tall, angular, glabrous; flowers pink, usually 2–4 in dichotomous cyme; peduncle 13–15 cm, angular, glabrous; pedicel (0.8–)2–3 cm, glabrous; bracts caducous. Staminate flower: tepals 4, outer 2 large, oblong, 1.3–1.8 × 0.8–1.5 cm, apex rounded; stamens numerous; filaments 2–2.5 mm, free; anthers oblong, ca. 1 mm. Pistillate flower: tepals 5 or 6, unequal, variable in shape, outer 2 broadly obovate, 1.2–2.1 × 1–1.3 cm, apex rounded, innermost 1 obovate-lanceolate, ca. 1 × 5–6 mm, apex rounded; ovary oblong or obovoid, ca. 10 × 5 mm, glabrous, unequally 3-winged, 2-loculed, placentae bilamellate; styles 2, short; stigma branched, spirally tortuous and papillose all around. Mature fruit unknown. Fl. Jul–Aug, fr. Sep.

• In shrubs by stream banks; 900–1000 m. Sichuan (Emei Shan).

This species is similar to *Begonia dielsiana* but differs by its axially hispidulous leaf blade.

47. *Begonia fangii* Y. M. Shui & C. I. Peng, Bot. Bull. Acad. Sin. 46: 83. 2005.

方氏秋海棠 fang shi qiu hai tang

Herbs, rhizomatous. Rhizomes elongate, 8–15 mm in diam.; internodes to 8–15 cm, sparsely villous. Leaves palmately compound; stipules triangular to narrowly so, 12–15 × 9–12 mm; petiole 6–20 cm; leaflets 3–6, abaxially reddish brown, adaxially dark green, lanceolate, 7–15 × 2.5–4.5 cm, subleathery, abaxially sericeous on veins, apex acuminate. Inflorescences axillary; peduncle to 22 cm, sparsely to moderately pubescent; bracts caducous, oblong to ovate, 8–13 × 6–9 mm, abaxially glabrous or subglabrous, apex acute to obtuse. Staminate flowers: tepals 4, pinkish, outer 2 broadly ovate to orbicular, 1.6–2.2 × 2–2.2 cm, abaxially pilose; inner 2 oblanceolate to obtrullate; stamens 25–55; filaments nearly free; anthers oblong, 1.5–1.7 mm. Pistillate flowers: tepals 3, pinkish, outer 2 broadly ovate to orbicular, 1.3–1.5 × 1.4–1.6 cm, abaxially pilose; inner tepal 8–10 × ca. 5 mm; ovary subglabrous, 1-loculed with parietal placentation; styles 3, fused at base. Capsule nodding, 12–15 × 6–7 mm, abaxial wing 4–6 × 12–15 mm. Fl. Dec–Apr, fr. Feb–Jun. $2n = 30^*$.

• On limestone rocks in forests; 400–700 m. Guangxi (Longzhou).

This species resembles *Begonia hemsleyana* by the palmately compound leaves, but can be distinguished by the horizontal stem, pistillate flower with 3 tepals, 3 stigmas, 1-loculed ovary, and parietal placentae.

48. *Begonia fenicis* Merrill, Philipp. J. Sci. 3: 421. 1909.

兰屿秋海棠 lan yu qiu hai tang

Begonia kotoensis Hayata.

Herbs, rhizomatous. Rhizomes elongate, to 1.9 cm in diam. Leaves basal; stipules ovate to triangular, to 2.1 × 1.8 cm, glabrous, apex mucronate, acuminate; petiole 7–31 cm, glabrous; blade broadly ovate to orbicular, asymmetric, 7–26 × 6–21 cm, glabrous or abaxially remotely scaberrulous, venation palmate, 7–10-veined, base oblique, cordate, margin irregularly denticulate, apex mucronate to acuminate. Inflorescences 17–53 cm, glabrous; bracts caducous, orbicular to oblate, to 1.4 × 1.8 cm, glabrous, margin entire and often reflexed, apex retuse to apiculate. Staminate flowers: pedicel 8–10 mm; tepals 4, outer 2 obovate to orbicular, 0.9–2.5 × 0.8–2.2 cm, inner 2 oblanceolate to narrowly obovate, 0.8–2.3 cm × 4–11 mm; stamens 39–58; filaments 1.2–2.3 mm; anthers broadly oblong, 1.4–1.8 mm, apex obtuse. Pistillate flowers: pedicel 1.5–2 cm; tepals 5(or 6), unequal, oblanceolate to broadly obovate, largest 0.8–2.1 × 0.7–1.8 cm, smallest 0.7–1.8 cm × 4–8 mm; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing transversely elliptic, 6–10 mm; lateral wings lunate, 3–8 mm. Fl. May–Oct. $2n = 26^*$.

Margins of coastal forests, raised coral rocks by seashores; below 100 m. Taiwan (Huoshao Dao, Lan Yu) [Japan (Ryukyu Islands), Philippines (Bataan Islands)].

49. *Begonia filiformis* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 521. 1939.

丝形秋海棠 *si xing qiu hai tang*

Herbs. Rhizomes creeping, tortuous, 0.7–1.5 mm in diam. Leaves all basal; stipules caducous, triangular, 0.5–1 × 0.5–0.7 cm, apex awned; petiole 5–15 cm; blade adaxially green, with white spot between veins, obliquely ovate to suborbicular, 9–22 × 9–14 cm, papery, abaxially woolly-villous, more densely so on veins, adaxially papillose-tomentose or setose-tomentose, venation palmate, 7-veined, tertiary veins weakly percurrent, base deeply cordate, margin shallowly and densely serrate, apex acuminate or shortly caudate. Inflorescences axillary; peduncle 22–40 cm, glandular hispid; bracts oblong-lanceolate, 4–7 × 1.1–1.5 mm, margin long ciliate or serrate-ciliate, apex awned. Staminate flowers: pedicel 1–2.3 cm, glandular hispid; tepals 4, outer 2 ovate or suborbicular, 8–12 × 7–8 mm, adaxially glandular hispid, apex acute or rounded, inner 2 oblong, 5–7 × 2.2–2.6 mm, apex rounded; stamens numerous; filaments ca. 1.5 mm; anthers obovoid, 0.5–0.8 mm, apex ± emarginate. Pistillate flowers: pedicel 1.5–3 cm, glandular hispid; tepals 3, outer 2 broadly ovate, 7–10 × 8–10 mm, adaxially glandular hispid, inner 1 oblong, 5–6 × 2.2–2.8 mm; ovary elliptic, glandular hispid, 1-loculed; styles 3, fused at base; stigmas spiraled. Capsule nodding, unequally 3-winged; abaxial wing ligulate or lunate, 4–7.5 mm; lateral wings smaller, subtriangular or lunate. Fl. (Mar–)Apr–Jun, fr. May.

• On limestone rocks or in moist rocky caves of forest understories. Guangxi (Long'an, Longzhou).

50. *Begonia fimbribracteata* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 362. 2005.

须苞秋海棠 *xu bao qiu hai tang*

Herbs, rhizomatous. Rhizomes 7–10 cm, 2–10 mm in diam., glabrous, internodes 0.2–0.4 mm, apex acuminate. Leaves all basal; stipules triangular, ca. 5 × 3 mm, subglabrous; petiole 9–15 cm, with sparse strigae 1–2 mm; blade broadly ovate, 6–7 × 5–6 cm, papery, rugose and conically bullate, abaxially sparsely strigose on veins and notched on areolae, adaxially sparsely tumid-based setose, basally 6- or 7-veined, tertiary veins percurrent and loosely reticulate, base obliquely cordate, margin ciliate and serrulate, apex rounded. Inflorescences with ca. 5 flowers in a dichasial cyme; peduncle 10–16 cm, sparsely hairy; bracts oblong, ca. 4 × 3 mm, glabrous, margin serrulate and fimbriate-ciliate. Staminate flowers: pedicels 1.2–1.5 cm, sparsely hairy; tepals 4, outer 2 pink, broadly obovate, 8–9 × 7–8 mm, sometimes abaxially sparsely pilose, inner 2 pinkish, oblong-obovate; stamens numerous; filaments nearly free, 1.2–1.4 mm; anthers broadly oblong, 1.1–1.2 × 1.4–1.6 mm, apex obtuse. Pistillate flowers: tepals 3, outer 2 pink, orbicular, 0.5–0.6 cm in diam., glabrous, inner 1 white, obovate; ovary obconiform, 4–5 mm, sparsely hairy, 1-loculed with parietal placentation; styles 3, free, 1–1.1 mm; wings 3, subequal, lunate. Capsules unknown. Fl. Jun.

• Limestone hills; ca. 300 m. Guangxi (Donglan).

51. *Begonia fimbriatipula* Hance, J. Bot. 21: 202. 1883.

紫背天葵 *zi bei tian kui**Begonia cyclophylla* J. D. Hooker.

Herbs, deciduous. Tubers 7–8 mm in diam. Leaf solitary; stipules ovate-lanceolate, 3–7 × 2–4 mm, apex acute and cuspidate; petiole 3–11.5 cm, villous; blade broadly ovate, 6–13 × 4.8–8.5 cm, nearly symmetric, rugulose, abaxially hairy, adaxially sparsely pubescent, venation palmate, 7(or 8)-veined, base slightly oblique, cordate or deeply cordate, margin denticulate, apex acute or shortly acuminate. Inflorescences terminal, cymose, 6–18 cm tall, glabrous; bracts oblong, 3–4 × 1.5–2.5 mm, glabrous, apex obtuse or acute. Staminate flowers: pedicel 1.5–2 cm; tepals 4, pale pink to purplish pink, glabrous, outer 2 broadly ovate, 8–13 × 8–10 mm, inner 2 obovate-oblong, 7–12.5 × 4–5 mm; stamens 50–60; filaments 1–1.5 mm; anthers oblong or obovoid-oblong, 0.6–1 mm, apex emarginate or obtuse. Pistillate flowers: pedicel 1–1.5 cm; tepals 3, pale pink to purplish pink, glabrous, outer 2 oblate or orbicular, 6–8 × 9–11 mm, inner 1 oblanceolate, 6.1–9.2 × 2.8–4.2 mm; ovary 5–6 mm, glabrous, 3-loculed; placentae axile, bilamellate; styles 3, 2.8–3 mm, free or fused to halfway; stigmas U-shaped. Capsule pendulous, ovoid-oblong, ca. 11 × 7–8 mm, unequally 3-winged; abaxial wing triangular, 1.1–1.4 cm; lateral wings ca. 3 mm. Fl. May, fr. Jun. $2n = 22^*$.

• Forest understories, on rocks or on soil of slopes; 700–1100 m. Fujian, Guangdong, Guangxi, Hainan, Hunan, Jiangxi, Zhejiang.

The leaves of this species are harvested and dried for brewing a beverage (i.e., a tea) in Guangdong.

52. *Begonia flaviflora* H. Hara, J. Jap. Bot. 45: 91. 1970.

黄花秋海棠 *huang hua qiu hai tang*

Herbs, rhizomatous. Rhizomes creeping. Stem erect, 20–30 cm, brown tomentose when young. Leaves basal and cauline; stipules lanceolate, caducous; petiole to 20 cm, brown tomentose when young; blade ovate, asymmetric, 10–23 × 7–18 cm, rugose, pilose, brown tomentose on veins, venation palmate, base obliquely cordate, margin denticulate, shallowly lobed to distinctly divided; lobes triangular, 1–5 cm, apex long acuminate or acuminate. Inflorescences with 3–6 flowers; peduncle to 11 cm, brown tomentose; bracts caducous, deep red, oblong, 2–3 cm, glabrous. Staminate flowers: tepals 4, yellowish to deep yellow, outer 2 ovate, 1.5–2 cm, adaxially pilose, apex acute, inner 2 elliptic, 1–1.5 cm, apex acute; stamens numerous; anthers oblong, 1.2–2 mm; ovary trigonous, pilose, unequally 3-winged. Fruit not seen.

Forests, shaded moist environments; 1600–2600 m. Xizang, Yunnan [Bhutan, NE India, Myanmar].

This species resembles *Begonia palmata* but differs by its yellow tepals.

- 1a. Blade very shallowly divided, lobes
ca. 1 cm, apex acute 52b. var. *gamblei*
- 1b. Blade shallowly lobed to distinctly divided.
 - 2a. Blade shallowly divided, lobes
1–3 cm, apex acuminate 52a. var. *flaviflora*
 - 2b. Blade distinctly divided, lobes
1.5–5 cm, apex long acuminate 52c. var. *vivida*

52a. *Begonia flaviflora* var. *flaviflora*

黄花秋海棠(原变种) huang hua qiu hai tang (yuan bian zhong)

Begonia laciniata Roxburgh subsp. *flava* (C. B. Clarke) Irmscher; *B. laciniata* var. *flava* C. B. Clarke.

Blade shallowly divided, lobes 1–3 cm, apex acuminate. Fl. unknown.

Forests, shaded moist environments; ca. 2600 m. Xizang (Nyalam) [NE India].

52b. *Begonia flaviflora* var. *gamblei* (Irmscher) Golding & Karegeannes, Phytologia 54: 496. 1984.

浅裂黄花秋海棠 qian lie huang hua qiu hai tang

Begonia laciniata subsp. *gamblei* Irmscher; *B. palmata* D. Don var. *gamblei* H. Hara.

Blade shallowly divided, lobes ca. 1 cm, apex acute. Staminate flower: tepals yellow, ca. 1.5 cm, outside scabrous.

Xizang [Bhutan, NE India].

52c. *Begonia flaviflora* var. *vidua* Golding & Karegeannes, Phytologia 54: 496. 1984.

乳黄秋海棠 ru huang qiu hai tang

Begonia laciniata subsp. *flaviflora* Irmscher.

Blade distinctly divided, lobes 1.5–5 cm, apex long acuminate; tepals pilose outside.

1600–2300 m. Yunnan (Bijiang, Gongshan) [Myanmar].

53. *Begonia fordii* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 501. 1939.

西江秋海棠 xi jiang qiu hai tang

Herbs, dwarf. Stem prostrate at base, ca. 13 cm tall, slender. Leaves cauline; stipules oblong or oblong-lanceolate, 4.5–8 × 1.8–2 mm, membranous, margin and outside hairy, apex aristate; petiole 5–6 cm, densely brown hairy; blade oblong-ovate, asymmetric, 11.5–12.5 × 6–7.5 cm, thickly papery, abaxially densely villous on veins, adaxially sparsely hirsute, venation palmate-pinnate, 7-veined, base obliquely cordate, margin densely serrulate, apex shortly acuminate. Inflorescences with several flowers; peduncle pubescent; bracts oblong or linear-lanceolate, 3–6 mm, membranous, outside pilose, margin villous; staminate flowers: pedicel 1–1.5 cm; tepals 4, outer 2 broadly ovate, 6–8 × 4.8–7 mm, abaxially hairy, inner 2 broadly elliptic, 5.6–7.5 × 3–4 mm, abaxially pilose; stamens numerous; filaments 1–1.5 mm, fused to ca. 1 mm below; anthers obovoid-globose, 0.4–0.5 mm, apex emarginate. Pistillate flowers not seen. Capsule suborbicular, ca. 7 × 5 mm, pilose, 3-loculed; unequally 3-winged; abaxial wing ca. 2.5 × 3 mm; lateral wings shorter; placentae axile, bilamellate. Fl. Aug.

• Guangdong (Xinyi).

This is a rarely collected species with very few specimens available for examination.

54. *Begonia formosana* (Hayata) Masamune, J. Geobot. 9(3–

4): frontis. pl. 41. 1961.

水鸭脚 shui ya jiao

Begonia laciniata Roxburgh var. *formosana* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 124. 1911; *B. formosana* f. *albomaculata* T. S. Liu & M. J. Lai; *B. tarokoensis* M. J. Lai.

Herbs. Rhizomes elongate, to 1.9 cm in diam. Stems erect, 35–95 cm tall, glabrous or subglabrous. Leaves basal and cauline; stipules caducous, ovate to very broadly ovate, to 2.5 × 1.8 cm; petiole 7–43 cm, glabrous or subglabrous; blade ovate to broadly ovate, asymmetric, 9–25 × 11–29 cm, abaxially sparsely scaberulous, adaxially subglabrous, venation palmate, 7–11-veined, base oblique, cordate, margin irregularly denticulate, shallowly divided, apex acuminate. Inflorescences to 23 cm, subglabrous; peduncle 6–13 mm; bracts caducous, triangular or broadly ovate, to 2.1 × 1.5 cm, thickly papery. Staminate flowers: pedicel 8–14 mm; tepals 4, white to pinkish, glabrous, outer 2 broadly obovate to orbicular, 1.2–2.6 × 1.1–2.5 cm, inner 2 oblanceolate to narrowly obovate, 1.1–2.3 cm × 5–13 mm; stamens 82–124; filaments 1.9–3.1 mm; anthers narrowly obovoid, 1.8–2.2 mm. Pistillate flowers: pedicel 8–14 mm; tepals 5 or 6(–10), unequal, narrowly obovate to very broadly obovate, largest 1.1–2.6 × 0.9–2.4 cm, smallest 1–2.3 cm × 5–11 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing triangular, 1–2.3 cm; lateral wings smaller. Fl. Jun–Oct, fr. Aug. 2n = 60, 64*.

Forests, shaded moist environments; 700–900 m. Taiwan [Japan (Ryukyu Islands)].

55. *Begonia forrestii* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 548. 1939.

陇川秋海棠 long chuan qiu hai tang

Herbs, deciduous. Rhizomes elongate, moniliform, ca. 8 mm in diam. Leaves basal; stipules caducous, broadly ovate to subtriangular, 6–7(–8) × 3–4.6 mm, glabrous, apex cuspidate; petiole (4–)10–15(–20) cm, densely villous; blade ovate to oval, asymmetric, 7–13 × 7–10(–14) cm, abaxially densely hirsute, adaxially sparsely hispidulous, venation palmate, 5-veined, base deeply cordate, margin irregularly serrulate, apex acute or obtuse, rarely rounded. Inflorescences 14–20 cm tall; bracts ovate-oblong or oblong, 4–7 × 2.2–4.5 mm, margin glandular, apex obtuse. Staminate flowers: pedicel 1.1–2.1 cm; tepals 4, pink, outer 2 broadly ovate to orbicular, 1.4–2.3 × 1.2–1.9 cm, abaxially with long glandular hairs, inner 2 obovate to oval, 11–18 × 9–13 mm; stamens numerous; filaments ca. 1.4 mm; anthers obovoid-globose, 1.3–1.7 mm. Pistillate flowers: pedicel to 1.8 cm; tepals 5, pink, largest broadly elliptic to suborbicular, 1.2–1.8 × 1–1.6 cm, abaxially pubescent, smallest narrowly obovate to ovate, 1.3–2 × 0.9–1.2 cm; ovary sparsely villous, 2-loculed; placentae axile, bilamellate; styles 2, 4–6 mm, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, 8–10 mm, unequally 3-winged; abaxial wing ligulate, 1.2–1.5 × 1.1–1.6 cm; lateral wings smaller. Fl. Apr–May, fr. Jul.

• On rocks, in shaded moist environments, on mountain slopes or on rocky cliffs in valleys; 1200–2600 m. Yunnan (Longchuan, Teng-

chong, Yingjiang).

56. *Begonia gagnepainiana* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 538. 1939.

昭通秋海棠 zhao tong qiu hai tang

Herbs. Rhizomes elongate, 2–3 mm in diam. Leaves basal; stipules ovate, 3.5–15 × 2.5–10 mm, glabrous, apex apiculate; petiole 2.5–10 cm, densely rusty villous; blade ovate, asymmetric, 3.5–5 × 2.4–4 cm, abaxially sparsely setulose, adaxially brown hairy, venation palmate, 6-veined, base oblique, deeply cordate, margin irregularly serrulate, apex caudate. Inflorescences 8–13.5 cm, glabrous; bracts ovate-oblong, 7–9 × 2.5–3 mm, margin slightly ciliate, apex acute. Staminate flowers: pedicel 1.4–1.8 cm; tepals 4, outer 2 broadly ovate, nearly as long as wide, abaxially setose, inner 2 oblong-obovate, 8–9 × 4–4.5 mm; stamens numerous; filaments ca. 2.1 mm; anthers obovoid, 1–1.2 mm. Pistillate flowers: pedicel 1–2.1 cm; tepals 5, unequal, largest broadly ovate, nearly as long as wide, 5.8–8 × 5.8–8 mm, abaxially setose, smallest broadly elliptic to oblong-obovate, 4.4–7 × 3.5–4.4 mm; ovary oblong, 3.5–4 × 1.5–2 mm, sparsely long hairy, 2-loculed; placentae axile, bilamellate; styles 2, ca. 3.6 mm, fused to halfway. Capsule unequally 3-winged. Fl. Jul–Aug.

- NE Yunnan (Zhaotong).

Only one gathering (the type) has been seen. This species is similar to *Begonia smithiana* but differs in having smaller, unlobed leaves.

57. *Begonia glechomifolia* C. M. Hu ex C. Y. Wu & T. C. Ku, Acta Phytotax. Sin. 33: 255. 1995.

金秀秋海棠 jin xiu qiu hai tang

Herbs, deciduous. Tubers ca. 1.8 cm in diam. Stems 18–25 cm tall, glabrous or subglabrous. Leaves basal and cauline; stipules caducous; petiole 3–9 cm, glabrous or subglabrous; blade subreniform, nearly symmetric, 2.5–5.5 × 4–8.5 cm, both surfaces subglabrous, venation palmate, 5–7-veined, base cordate, margin remotely denticulate, apex rounded or acute. Inflorescences terminal, glabrous; peduncle 9–13 cm; bracts caducous. Staminate flowers: pedicel 1–1.3 cm; tepals 4, outer 2 oblong or broadly ovate, ca. 1.2 × 1 cm, inner 2 obovate, ca. 7 × 5 mm; stamens numerous; filaments free; anthers subglobose, ca. 0.8 mm. Pistillate flowers: tepals 3, outer 2 broadly ovate, ca. 8 × 8 mm, inner 1 oblong, 5–6 × ca. 4 mm; ovary oblong, 3-loculed; placentae axile, bilamellate; styles 3; stigmas spiraled. Capsule unequally 3-winged; abaxial wing falcate, ca. 9 × 0.6 mm; lateral wings smaller, lunate, ca. 2 mm. Fl. Jun.

- On rocks; ca. 3000 m. Guangxi (Jinxu, Xiangzhou).

58. *Begonia grandis* Dryander, Trans. Linn. Soc. London 1: 163. 1791.

秋海棠 qiu hai tang

Herbs, deciduous. Tubers subglobose, 8–12 mm in diam. Stems 28–60 cm tall, subglabrous. Leaves cauline; stipules caducous, oblong to lanceolate, ca. 10 × 2–4 mm, membranous, margin entire, apex acuminate; petiole 4–20 cm, subglabrous; blade broadly ovate, asymmetric, 10–20 × 7–14 cm, venation palmate, 7(–9)-veined, base obliquely cordate, margin irregular-

ly serrulate, apex acuminate to long acuminate. Inflorescences terminal and axillary, 7–16 cm tall, glabrous, terminal inflorescence racemose at base, axillary inflorescence cymose; bracts caducous, oblate to oblong, 5–13 × 2–17 mm, margin entire, apex obtuse. Staminate flowers: pedicel 0.8–2.2 cm; tepals 4, white to pink, glabrous, outer 2 broadly ovate or suborbicular, 1.1–1.7 × 1–1.7 cm, inner 2 obovate to obovate-oblong, 7–11 × 3–9 mm; stamens 28–140; filaments to 6.1 mm; anthers obovoid, 0.8–1.1 mm, apex emarginate. Pistillate flowers: pedicel 2.5–5 cm; tepals 3, white to pink, glabrous; outer 2 suborbicular or oblate-orbicular, ca. 1.2 × 1.2 cm, inner 1 obovate, ca. 8 × 6 mm; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles fused at base or free; stigmas 2-cleft or U-shaped, spiraled or not. Capsule pendulous, oblong, 10–12 × ca. 7 mm, unequally 3-winged; abaxial wing oblong or triangularly oblong, ca. 1.8 cm; lateral wings narrowly triangular, or all wings narrowly triangular. Fl. Jul, fr. Aug. $2n = 26^*$.

- Forests, evergreen broad-leaved forests on montane slopes, streamsides in dense valley forests, moist rocky cliffs of valleys, wet fissures of limestone rocks, on rocks in shaded moist environments, on slopes, in valleys, or by streams; 100–3400 m. Anhui, Fujian, S Gansu, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang.

- 1a. Styles free, not branched; stigma apical or reniform; filaments connate not beyond 1 mm 58c. subsp. *holostyla*
- 1b. Styles connate at base or slightly connate, branched; stigma spirally tortuous, U-shaped; stamens more numerous, filaments connate to or beyond 2 mm above base.
 - 2a. Stem weak; leaf blade abaxially pale, occasionally reddish, elliptic-ovate to triangular-ovate, 5–12(–20) × 3.5–9(–13) cm; filaments connate for less than 2 mm 58b. subsp. *sinensis*
 - 2b. Stem stout; leaf blade abaxially red or at least red on veins, ovate to broadly so, larger than above; filaments connate beyond 2 mm 58a. subsp. *grandis*

58a. *Begonia grandis* subsp. *grandis*

秋海棠(原亚种) qiu hai tang (yuan ya zhong)

Begonia discolor R. Brown; *B. erubescens* H. Léveillé; *B. evansiana* C. Andrews; *B. grandis* subsp. *evansiana* (C. Andrews) Irmscher.

Stem stout. Leaf blade abaxially red or at least red on veins, ovate to broadly so, larger. Filaments connate beyond 2 mm. Capsule with evident, narrow, triangular wings.

- Streamsides in dense valley forests, moist rocky cliffs of valleys, on rocks by streams; 100–1100 m. Anhui, Fujian, Guangxi, Guizhou, Hebei, Henan, Hunan, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang.

Begonia grandis var. *unialata* Irmscher (Mitt. Inst. Allg. Bot. Hamburg 10: 493. 1939) differs in having a capsule with 1 large wing,

and the other 2 wings very narrow or nearly absent.

58b. *Begonia grandis* subsp. *sinensis* (A. Candolle) Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 494. 1939.

中华秋海棠 zhong hua qiu hai tang

Begonia sinensis A. Candolle, Ann. Sci. Nat., Bot., sér. 4, 11: 125. 1859; *B. bulbosa* H. Léveillé; *B. martini* H. Léveillé.

Stem 20–40 cm tall, weak, usually not branched. Leaf blade abaxially pale, occasionally reddish, elliptic-ovate or triangular-ovate, 5–12(–20) × 3.5–9(–13) cm, both surfaces glabrous or subglabrous. Filaments connate for less than 2 mm. Styles connate or slightly connate at base, branched; stigma spirally tortuous, rarely U-shaped.

- Forests, on limestone rocks in shaded moist environments, on slopes, or in valleys; 300–3400 m. Fujian, S Gansu, Guangxi, Guizhou, Hebei, Henan, Jiangxi, Shaanxi, Shandong, Shanxi, E Sichuan, Yunnan, Zhejiang.

Begonia grandis var. *puberula* Irmscher (Mitt. Inst. Allg. Bot. Hamburg 10: 496. 1939) differs in having a leaf blade adaxially densely hispidulous (hairs ca. 0.3 mm) and sparsely hirsute (hairs 0.8–0.9 mm), while var. *villosa* T. C. Ku (Fl. Reipubl. Popularis Sin. 52(1): 166. 1999) differs in having a leaf blade adaxially slightly floccose.

58c. *Begonia grandis* subsp. *holostyla* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 498. 1939.

全柱秋海棠 quan zhu qiu hai tang

Stem (12–)20–40(–60) cm tall, weak, usually not branched. Leaf blade triangular-ovate, 3–13 × 2–10 cm. Styles free, not branched; stigmas capitate or reniform. Fl. Jul–Aug, fr. Sep–Oct.

- Evergreen broad-leaved forests on montane slopes, on shaded moist rocks of shrubberies, wet fissures of limestone rocks, moist places by rocks; 2200–2800 m. Sichuan (Muli), Yunnan.

59. *Begonia guangxiensis* C. Y. Wu, Acta Phytotax. Sin. 35: 45. 1997.

广西秋海棠 guang xi qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, stout, 1.3–2 cm in diam. Leaves all basal; stipules caducous; petiole 10–22 cm, villous; blade obliquely broadly ovate or suborbicular in outline, 10–33 × 8–24 cm, papery, both surfaces villous-hirsute, basally 6- or 7-veined, tertiary veins weakly percurrent and reticulate, base deeply cordate, margin unequally shallowly dentate or denticulate, sometimes 3–5 shallowly sharply lobed, apex acuminate, often white-tipped. Inflorescences axillary; peduncle 10–35 cm, villous; flowers 5–20 in a dichasial cyme; bracts ovate, broadly ovate, or triangular-lanceolate, 2–9 × 1.7–6 mm. Staminate flowers: pedicel 1–1.5 cm; tepals 4, outer 2 broadly ovate or suborbicular, ca. 1.7 × 2 mm, abaxially pilose, inner 2 obovate or elliptic, ca. 1.2 × 6–7 mm; androecium nearly actinomorphic; stamens numerous; filaments fused at base, anthers obovoid, apex truncate. Pistillate flowers: pedicel ca. 3 cm; tepals 3; styles 3; ovary villous, 1-loculed with parietal placentation. Capsule nodding, ovoid-oblong, 1.5–2.1 × 1–1.4 cm, hairy, unequally 3-winged; abaxial wing obliquely

lunate, other 2 narrow, lunate, hispidulous. Fl. Jan–Mar, fr. Mar–May.

- Limestone hills, on moist rocky slopes, forest understories, in caverns; 200–300 m. Guangxi (Du'an, Yishan).

60. *Begonia guishanensis* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 336. 1994.

圭山秋海棠 gui shan qiu hai tang

Begonia rhodophylla C. Y. Wu.

Herbs. Rhizome 1–1.5 cm in diam. Stems 3–5 cm tall, 1–2 mm in diam. Leaves solitary or binary, basal; stipules caducous; petiole 7–20 cm, densely villous when young; blade asymmetric, narrowly ovate or ovate-oblong, 7–16.5 × 5.4–12.5 cm, abaxially setulose, adaxially sparsely setulose, venation palmate, 6- or 7-veined, base oblique, margin irregularly sharply serrate and irregularly shallowly lobed; lobes 5–7, apex acuminate. Inflorescence 11–15 cm tall, villous when young; pedicel 0.8–1.8 cm; bracts oblong, ca. 8 × 5 mm, abaxially pubescent, margin serrate, apex acute. Staminate flowers: tepals 4, outer 2 larger, broadly ovate, 8–10 × 5–6 mm, abaxially villous, inner 2 smaller, oblong, ca. 5 × 1.5 mm; stamens numerous; filaments free; anthers oblong or obovate-oblong, ca. 1 mm. Pistillate flowers: tepals 3(or 4), outer 2 broadly ovate, 8–9 × 6–7 mm, inner 1 oblong, 5–6 × 2.5–3 mm; ovary villous, unequally 3-winged, 3-loculed; placentae bilamellate; styles 3, free, ca. 2 mm; stigmas globose. Capsule unequally 3-winged; abaxial wing falcate, ca. 2.3 × 0.8 cm; lateral wings smaller. Fl. Aug–Sep, fr. Sep.

- Mixed forests on limestone hills; 1800–2000 m. Yunnan (Lunan).

This species is similar to *Begonia labordei* but can be distinguished by the shallowly lobed leaves.

61. *Begonia gulinqingensis* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 334. 1994.

吉林箐秋海棠 gu lin qing qiu hai tang

Begonia brevicaulis T. C. Ku (1997), not A. Candolle (1859); *B. sinobrevicaulis* T. C. Ku.

Herbs. Rhizomes elongate, 4–6 mm in diam., red hairy. Leaves basal; stipules triangular-lanceolate, ca. 1.2 × 6 mm, margin ciliate, apex acuminate; petiole 5.5–15 cm, red hairy; blade sometimes with several pale greenish spots adaxially, suborbicular, asymmetric, 5–7 × 6–7.5 cm, abaxially sparsely hirsute, adaxially sparsely hispidulous, venation palmate, 7-veined, base obliquely cordate, margin crenulate, apex rounded. Inflorescences hairy; peduncle ca. 2.1 cm. Staminate flowers: pedicel ca. 3.5 cm; tepals 4, pink, outer 2 suborbicular, ca. 1.8 cm, glabrous; stamens numerous; filaments ca. 1.5 mm, fused at base; anthers obovoid, apex rounded. Pistillate flowers: pedicel ca. 1 cm; ovary hairy, 3-loculed; placentae axile, bilamellate; tepals 5; styles 3; stigmas 2-cleft. Capsule nodding, obovoid, ca. 1 × 0.8 cm, sparsely hairy, unequally 3-winged; abaxial wing triangular, ca. 4 × 6 mm; lateral wings ca. 2.5 mm. Fl. Jun, fr. Jul.

- Forests, near summits; 1600–1900 m. Yunnan (Maguan).

62. *Begonia gungshanensis* C. Y. Wu, Acta Phytotax. Sin. 33: 270. 1995.

贡山秋海棠 *gong shan qiu hai tang*

Herbs. Rhizomes moniliform, short, stout. Stems erect, to 90 cm, glabrous or subglabrous. Leaves cauline; stipules caducous, lanceolate to ovate-lanceolate, 5–8 × ca. 5 mm, membranous, apex acuminate; petiole 1.5–3 cm, pubescent; blade falcate or narrowly lanceolate, asymmetric, 8–14 × 2.5–3.8 cm, abaxially pubescent, adaxially sparsely hispidulous, venation palmate-pinnate, base obliquely cordate, margin bidentate, very shallowly lobed, apex long acuminate or long caudate. Inflorescences glabrous, with 2–4 (or 5) flowers; peduncle 4–5 (–6) cm; bracts ovate or oblong, 8–13 × ca. 5 mm, apex acuminate. Staminate flowers: pedicel 1–1.5 (–2) cm; tepals 4, pink, outer 2 broadly ovate, ca. 10 × 9 mm, abaxially villous, inner 2 elliptic, ca. 8 × 4 mm; stamens numerous; filaments free, 0.8–1 mm; anthers obovoid, ca. 1 mm. Pistillate flowers not seen. Capsule ellipsoid or obovoid-oblong, 5–6 mm, glabrous, 2-loculed; placenta axile, bilamellate; unequally 3-winged; abaxial wing falcate, 1.8–2 × ca. 1.2 cm, apex rounded; lateral wings triangular, 5–10 mm. Fl. Aug, fr. Dec.

• Evergreen broad-leaved forests and scrubby vegetation, by streams in valleys; 1400–2000 m. NW Yunnan (Gongshan).

This species is similar to *Begonia clivicaulis* but differs by its bidentate leaf margin and the 2-loculed ovary.

63. *Begonia hainanensis* Chun & F. Chun, *Sunyatsenia* 4: 20. 1939.

海南秋海棠 *hai nan qiu hai tang*

Herbs, prostrate. Stems 12–30 cm, 3–4 mm in diam., appressed hairy. Leaves cauline; stipules oblong-lanceolate, 7–13 × 2–3 mm, abaxially hairy, margin denticulate, apex acuminate; petiole 2–4 cm, appressed hairy; blade abaxially red on veins, adaxially dark green, elliptic-oblong, slightly asymmetric, 5–10 × 2–4 cm, abaxially sparsely brown hirsute and pale papillose, adaxially glabrous or subglabrous, venation palmate-pinnate, 5 (–7)-veined, base slightly oblique, rounded, margin remotely denticulate, apex acuminate. Inflorescences terminal and axillary, subglabrous; staminate inflorescences terminal and axillary, cymose; pistillate inflorescences axillary, always below staminate inflorescences, solitary or binary; bracts narrowly obovate, 3–10 mm, glabrous, margin minutely denticulate, apex obtuse to acute. Staminate flowers: pedicel 1.2–1.7 cm; tepals 4, white, with reddish veins, glabrous, outer 2 elliptic, 10–11 × 8–9 mm, inner 2 narrowly oblong, 7–8 × ca. 2 mm; stamens 25–30; filaments fused below. Pistillate flowers: pedicel ca. 8 mm, bracteole 1, margin denticulate, apex acute; tepals 5, glabrous, unequal, largest white, with reddish veins, broadly elliptic, 9–12 × 7–8 mm, smallest nearly white, narrowly oblong, 9–10 × 3–4 mm; ovary glabrous, 3-loculed; placenta axile, bilamellate; styles 3, 2–4 mm, fused at base; stigmas 2-cleft, spiraled. Capsule pendulous, ovoid-oblong, to 1.4 cm, equally 3-winged; wings triangular, 1.1–1.5 cm. Fl. Apr.

• Forests, on mossy rocks along streams; ca. 1000 m. Hainan (Baoting, Lingshui).

64. *Begonia handelii* Irmscher, *Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl.* 58: 24. 1921.

香花秋海棠 *xiang hua qiu hai tang*

Herbs, dioecious. Rhizomes prostrate, 8–19 mm in diam. Leaves on rhizome; stipules caducous, narrowly triangular to ovate, 15–28 × 9–10 mm, membranous, apex acuminate or cuspidate; petiole 13–38 cm, sparsely hairy to glabrous; blade broadly ovate to ovate, asymmetric, 8–29 × 6–18 cm, both surfaces glabrous, subglabrous, or red pilose, venation palmate-pinnate, 7–9-veined, base obliquely cordate, margin irregularly denticulate, apex acute or acuminate. Inflorescences reduced, glabrous to pilose; staminate inflorescences erect, with numerous flowers; pistillate inflorescences pendulous, 2–4-flowered; bracts caducous, ovate-lanceolate, 8–15 (–20) × 5–9 mm, margin entire, apex acuminate. Flowers fragrant, white to pink; staminate flowers: pedicel 2–4.5 cm; tepals 4, outer 2 ovate, (0.8–)3–5.5 (–6.5) × 1.8–2.7 cm, apex acute or obtuse, inner 2 narrowly oblong or linear, 1.8–11 cm × 5–24 mm, apex obtuse; stamens more than 100; filaments 2–4.1 mm, free; anthers oblong, 2–3.1 mm, apex rounded. Pistillate flowers: pedicel 2–3 cm; tepals 4, outer 2 elliptic, 2.1–3 × 1.8–2.1 cm, apex rounded, inner 2 narrowly oblong or linear, 6–15 × 1.9–8 mm, apex rounded; ovary obovoid, hairy or glabrous, 4 (–8)-loculed; placenta axile, forked once or twice; styles 4, 5.1–7.2 mm, forked once or twice; stigmas 2-cleft, spiraled. Fruit pendulous, wingless or 4 (–8)-horned. Fl. Jan. $2n = 66^*$.

Forests, variable vegetation, shaded moist environments; 100–1500 m. Guangdong, Guangxi, Hainan, Yunnan [Laos, Myanmar, Thailand, Vietnam].

- 1a. Outer tepals of staminate flowers 0.8–2 cm, apex rounded 64c. var. *prostrata*
- 1b. Outer tepals of staminate flowers 3–6.5 cm, apex usually acute.
 - 2a. Outer tepals of staminate flowers and ovary glabrous or subglabrous 64a. var. *handelii*
 - 2b. Outer tepals of staminate flowers and ovary red pilose 64b. var. *rubropilosa*

64a. *Begonia handelii* var. *handelii*

香花秋海棠(原变种) *xiang hua qiu hai tang* (yuan bian zhong)

Outer tepals of staminate flowers 3–6.5 cm, glabrous or subglabrous, apex usually acute. Ovary glabrous or subglabrous.

Variable vegetation, shaded moist environments; 100–900 m. Guangdong, Guangxi, Hainan, Yunnan [Myanmar, Vietnam].

64b. *Begonia handelii* var. *rubropilosa* (S. H. Huang & Y. M. Shui) C. I. Peng, **comb. nov.**

红毛香花秋海棠 *hong mao xiang hua qiu hai tang*

Basionym: *Begonia balansana* Gagnepain var. *rubropilosa* S. H. Huang & Y. M. Shui, *Acta Bot. Yunnan.* 21: 12. 1999.

Outer tepals of staminate flowers 3–6.5 cm, red pilose, apex usually acute. Ovary red pilose.

• Forests, shaded moist environments; ca. 1400 m. Yunnan (Pingbian).

64c. *Begonia handelii* var. *prostrata* (Irmscher) Tebbitt, *Edinburgh J. Bot.* 60: 6. 2003.

铺地秋海棠 *pu di qiu hai tang*

Begonia prostrata Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 516. 1939; *B. chuniana* C. Y. Wu; *B. xinyiensis* T. C. Ku (1995), not *B. xingyiensis* T. C. Ku (1995).

Outer tepals of staminate flowers 0.8–2 cm, apex rounded. Fl. May, fr. Jun.

Forests, shaded moist environments; 100–1500 m. Guangxi, Yunnan [Laos, Thailand, Vietnam].

65. *Begonia hatacoa* Buchanan-Hamilton ex D. Don, Prodr. Fl. Nepal. 223. 1825.

墨脱秋海棠 mo tuo qiu hai tang

Herbs, 30–65 cm tall. Rhizome not seen. Stem branching twice or more. Leaves cauline; stipules lanceolate, 6–10 mm, membranous, apex acuminate; petiole 8–24 mm, densely brown hirsute; blade ovate-lanceolate to elliptic-lanceolate, asymmetric, 6–9.6 × 2.1–3.2 cm, abaxially brown pubescent, adaxially glabrous or subglabrous, venation palmate-pinnate, 5–7-veined, base slightly oblique, rounded or slightly cordate, margin remotely serrulate, apex long acuminate to caudate. Inflorescences glabrous; peduncle 2–3.1 cm; bracts narrowly elliptic to lanceolate, 5–8 × 1.5–3.5 mm, membranous, abaxially brown hirsute when young, apex acuminate. Staminate flowers: pedicel 5–10 mm; tepals 4, outer 2 triangular-ovate, ca. 5 × 3.5 mm, glabrous, inner 2 oblong, ca. 4 × 1.5 mm; stamens numerous; filaments free, ca. 1.5 mm; anthers reniform, ca. 0.8 mm. Pistillate flowers: tepals 5, unequal, largest broadly ovate, ca. 7 × 4 mm, glabrous, smallest oblong or lanceolate, 6–7 × 1.5–2 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule pendulous, oblong, ca. 14 × 8 mm, unequally 3-winged; abaxial wing broadly falcate, 1.5–2 cm × 6–9 mm, apex rounded; lateral wings smaller, ca. 4 mm. Fl. Oct–Nov, fr. Dec–Jan.

Evergreen broad-leaved forests, on rocks in shaded moist environments on slopes or by streams; 1200–1500 m. SE Xizang (Mêdog) [Bhutan, N India, Nepal].

66. *Begonia hekouensis* S. H. Huang, Acta Bot. Yunnan. 21: 21. 1999.

河口秋海棠 he kou qiu hai tang

Begonia gesnerioides S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 341. 1994, not L. B. Smith & B. G. Schubert (1941).

Herbs, to 30 cm tall. Rhizomes ca. 9 mm in diam. Stems brown appressed hairy. Leaves basal and cauline; stipules caducous; petiole 22–24 cm, brown appressed hairy; blade ovate or broadly elliptic, slightly asymmetric, ca. 14.5 × 2.5 cm, abaxially brown appressed hairy, adaxially hispidulous, base nearly rounded or very shallowly cordate, margin irregularly denticulate, apex acuminate. Inflorescences hairy; peduncle 2.3–5 cm; bracts lanceolate to triangular-lanceolate, 5–6 mm, margin ciliate, apex acuminate. Staminate flowers: pedicel ca. 1.3 cm; tepals 4, orange-red, outer 2 broadly ovate, ca. 13 × 8 mm, villous, inner 2 elliptic, ca. 8 × 5 mm; stamens numerous; filaments ca. 1 mm; anthers oblong, ca. 1 mm. Pistillate flowers: pedicel ca. 1.5 cm; tepals 5, unequal, largest broadly ovate, 1.3–

1.5 × 6–8 mm, outside purplish brown villous; ovary densely purplish brown villous, 2-loculed; placentae axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, ovoid-oblong, ca. 12 × 6–8 mm, unequally 3-winged; abaxial wing ligulate, ca. 1.5 × 1.2 cm; lateral wings triangular, ca. 6 × 12 mm, purplish brown villous. Fl. Jul–Sep, fr. Sep–Oct.

• Forest understories; 200–500 m. Yunnan (Hekou).

67. *Begonia hemsleyana* J. D. Hooker, Bot. Mag. 125: t. 7685. 1899.

掌叶秋海棠 zhang ye qiu hai tang

Herbs, 30–80 cm tall. Rhizomes short, stout, 3–11 mm in diam. Stems hairy. Leaves cauline, or basal and cauline; stipules ovate-lanceolate, 5–21 × 4–10 mm, abaxially hispidulous, apex acuminate and cuspidate; petiole 8–14 cm, sparsely hispidulous, subglabrous, or glabrous; blade palmately compound, leaflets 7(or 8), oblong-lanceolate or obovate-lanceolate 6–12 × 1.9–4 cm, abaxially sparsely hirsute, adaxially sparsely hirsute, base cuneate or broadly cuneate, margin remotely serrulate, apex acuminate or long caudate-acuminate. Inflorescences 3–18 cm, subglabrous; peduncle 4–7.5 cm; bracts lanceolate, 1.3–1.7 cm, outside and margin hairy, apex acuminate and cuspidate. Staminate flowers: pedicel 8–32 mm; tepals 4, pink, outer 2 broadly ovate or suborbicular, 1–1.8 × 0.8–1.7 cm, abaxially villous, inner 2 ovate, 5–16 × 4–12 mm; stamens numerous; filaments ca. 5 mm; anthers ovoid-globose, ca. 8 mm. Pistillate flowers: tepals 5, unequal, largest broadly ovate, 9–11 × 9–11 mm, abaxially villous, smallest orbicular, 9–12 × 8–11 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, ca. 4.1 mm, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, obovoid-globose or ellipsoid, 10–13 × 5–7 mm, unequally 3-winged; abaxial wing falcate, 1.5–2.1 cm, apex rounded; lateral wings ca. 3 mm. Fl. Dec, fr. Jun. $2n = 20, 22^*$.

Forests, valleys, shaded moist environments; 1000–1300 m. Guangxi, SE Yunnan [Vietnam].

- 1a. Leaves cauline; petiole hairy or subglabrous; leaflets with distinct petiolules 67a. var. *hemsleyana*
- 1b. Leaves basal and cauline; petiole glabrous; leaflets attenuate toward base 67b. var. *kwangsiensis*

67a. *Begonia hemsleyana* var. *hemsleyana*

掌叶秋海棠(原变种) zhang ye qiu hai tang (yuan bian zhong)

Leaves cauline; petiole hairy or subglabrous; leaflets with distinct petiolules.

Forests, shaded moist environments; 1000–1300 m. SW Guangxi, SE Yunnan [Vietnam].

67b. *Begonia hemsleyana* var. *kwangsiensis* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 538. 1939.

广西掌叶秋海棠 guang xi zhang ye qiu hai tang

Leaves basal and cauline; petiole glabrous; leaflets attenuate toward base.

- Valleys; 1200–1300 m. Guangxi (Lingyun).

This is an imperfectly known taxon represented only by the type gathering made in 1928.

68. *Begonia henryi* Hemsley, J. Linn. Soc., Bot. 23: 322. 1887.

独牛 du niu

Begonia delavayi Gagnepain; *B. mairei* H. Léveillé.

Herbs, deciduous. Tubers 8–10 mm in diam. Leaves 1 (or 2), basal; stipules ovate-lanceolate, membranous, margin ciliate, caducous; petiole 6–13 cm, brown villous; blade triangular-ovate or broadly ovate, rarely suborbicular, 3.5–6 × 4–7.5 cm, sparsely pubescent, venation palmate, base oblique, deeply cordate, margin crenate, apex obtuse, acute, or shortly acuminate. Inflorescence terminal, 7.5–12 cm tall, pilose or subglabrous, with very few flowers; bracts oblong or elliptic, ca. 5 × 4 mm, membranous, margin serrate, apex acute. Staminate flowers: pedicel ca. 1 cm; tepals 2, pink, oblate-orbicular or broadly ovate, 8–12 × 10–13 mm, glabrous; stamens numerous; filaments free, 1.2–1.5 cm; anthers obovoid, ca. 1.2 mm, apex emarginate. Pistillate flowers: tepals 2, oblate, 6–8 × 7–8 mm; glabrous; ovary glabrous, 3-loculed; placentae axile, undivided; styles 3; stigmas 2-cleft. Capsule pendulous, oblong, ca. 11 × 5 mm, unequally 3-winged; abaxial wing triangular, 5–7 mm; lateral wings smaller. Fl. Sep–Oct, fr. Oct. $2n = 30^*$.

- On rocks or in fissures, shaded moist environments; 800–2600 m. N Guangxi, SE Guizhou, Hubei (Yichang), Sichuan, Yunnan.

69. *Begonia hongkongensis* F. W. Xing, Ann. Bot. Fenn. 42: 151. 2005.

香港秋海棠 xiang gang qiu hai tang

Herbs. Rhizomes ca. 3 mm in diam. Stems 10.3–21 cm. Leaves basal and cauline; stipules lanceolate, 1–2 cm, membranous; petiole 5.2–9.4 cm, apex sparsely shortly hairy; blade oblong-ovate to rhombic-ovate, slightly asymmetric, 7–13.6 × 2.3–4.5 cm, abaxially sparsely shortly hairy, adaxially glabrous, venation palmate-pinnate, 5- or 6-veined, base slightly oblique, cuneate to broadly cuneate, margin irregularly and remotely serrate, very shallowly lobed, apex acuminate to caudate. Inflorescences glabrous; peduncle ca. 5 cm; bracts lanceolate, ca. 8.5 × 3 mm, membranous, glabrous, apex aristate. Staminate flowers: pedicel 7–14 cm; tepals 4, white, outer 2 broadly ovate or oblong, ca. 10 × 9 mm, glabrous, inner 2 ovate, ca. 8 × 4 mm; stamens numerous; filaments entirely fused, 1.1–1.4 mm; anthers oblong or obovoid, 1–1.3 mm. Pistillate flowers: pedicel pale pinkish, 2–2.5 cm; tepals 5, white, 0.7–1.2 × 0.6–1.2 cm, glabrous; ovary ovoid, glabrous, 2-loculed; placentae axile, bilamellate; styles 2, ca. 3 mm, free; stigmas spiraled. Capsule nodding, 1.8–2.9 cm, unequally 3-winged; abaxial wing ligulate, ca. 2.8 × 1.6 cm, apex obtuse; lateral wings smaller. Fl. Jul–Sep, fr. Oct–Dec.

- Evergreen secondary forests, on moist rocks by streams in ravines; 100–400 m. Hong Kong.

Begonia hongkongensis is similar to *B. tsoongii*, which is known only by the type gathering made in 1916 from S Guangxi. It differs from the latter by having cauline leaves, leaf blade margin very shallowly lobed, irregularly and remotely serrate, and apex acuminate to

caudate.

70. *Begonia howii* Merrill & Chun, Sunyatsenia 5: 138. 1940.

侯氏秋海棠 hou shi qiu hai tang

Herbs, erect, 17–25 cm tall. Rhizomes elongate, 7–10 mm in diam. Leaves basal and cauline; stipules ovate-lanceolate, ca. 5 mm, glabrous, apex acuminate; petiole 3–19 cm, glabrous; blade obliquely ovate to broadly ovate, asymmetric, 7.5–16 × 5–10 cm, both surfaces glabrous, venation palmate, 6-veined, base truncate to slightly cordate, margin irregularly serrulate, apex acuminate or shortly caudate. Inflorescences glabrous; peduncle 1.5–1.8 cm; bracts oblong or oblong-ovate, 8–12 mm, glabrous, apex obtuse or acute. Staminate flowers: pedicel 1.2–1.5(–2) cm; tepals 4, glabrous, outer 2 ovate-oblong, 1.5–1.6 × ca. 1.3 cm, inner 2 oblong, 9–11 × ca. 5 mm; stamens numerous; filaments 1–1.5 mm; anthers oblong or obovoid-oblong, ca. 1.2 mm. Pistillate flowers: tepals unknown; ovary obovoid-oblong, ca. 1 cm × 6–7 mm, glabrous, 2-loculed; placentae axile, bilamellate; tepals 5; styles 2, free; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged. Fl. Jun–Jul.

- Forests, on rocks in valleys; 600–700 m. Hainan (Baoting, Wanning).

71. *Begonia huangii* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 365. 2005.

黄氏秋海棠 huang shi qiu hai tang

Herbs, rhizomatous. Rhizomes 6–10 cm, 4–5.5 mm in diam.; internodes 3–7 mm. Leaves all basal; stipules mostly persistent, ovate-triangular, 5–8 × 4–6 mm; petiole 8.5–20 cm, hirsute-villous; blade adaxially with white patches between veins, oblique, suborbicular or very broadly ovate, 8–15 × 7–11.5 cm, papery, abaxially densely pilose, adaxially moderately pilose (hairs 1–1.8 mm), basally 6- or 7-veined, tertiary veins percurrent and reticulate, base deeply cordate, margin irregularly denticulate and ciliate, apex acute or shortly acuminate. Inflorescences 6- or 7-flowered; peduncle 4.5–5.6 cm, glabrous; bracts caducous, broadly ovate. Staminate flowers: pedicel 6–10 mm; tepals 4, white or red, outer 2 ovate or broadly so, 8–11 × 7–9 mm, glabrous, inner 2 obovate-oblong, ca. 12 × 6 mm, glabrous; stamens ca. 30; filaments 1–1.5 mm, fused at base, anthers obovoid to oblong, 0.8–1.1 × 0.4–0.5 mm. Pistillate flowers: pedicel 5.5–8 mm; tepals 3; ovary glabrous, 1-loculed with parietal placentation; styles 3, 1.4–2 mm, free, caducous in fruit, stigmas U-shaped. Capsule nodding, ellipsoid, 1–1.1 × ca. 0.8 cm, glabrous, subequally 3-winged; abaxial wing lunate, ca. 3 mm; lateral wings smaller. Fl. Aug–Nov, fr. Oct.

- On rocks in limestone forests; (300–)700–1000 m. Yunnan (Gejiu, Pingbian).

72. *Begonia hymenocarpa* C. Y. Wu, Acta Phytotax. Sin. 33: 256. 1995.

膜果秋海棠 mo guo qiu hai tang

Herbs, slender. Rhizomes poorly developed, 4–6 mm in diam. Stems erect, 25–50 cm tall, subglabrous. Leaves cauline; stipules membranous, caducous; petiole 3.5–8 cm, glabrous; blade narrowly ovate, asymmetric, 6–11 × 4.5–7 cm, membranous, sparsely hispidulous, venation palmate, 5-veined, base cor-

date, margin irregularly denticulate, apex shortly acuminate to shortly caudate. Inflorescences terminal or axillary, glabrous; bracts ovate-lanceolate, ca. 1.8 mm, margin ciliate. Staminate flowers: pedicel 4–7 mm; tepals 4, pink, abaxially hairy, outer 2 larger, broadly ovate, 8–9 × 10–12 mm, inner 2 smaller, ovate, 5–6 × 3–4 mm; stamens numerous; filaments 1.1–1.5 mm, free; anthers oblong, 0.9–1 mm. Pistillate flowers: tepals 5, unequal, glabrous or abaxially hairy; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3, free; stigmas 2-cleft, spiraled. Capsule pendulous, ca. 1.4 cm, unequally 3-winged; abaxial wing ca. 6 × 5 mm; lateral wings smaller. Fl. Jul–Aug, fr. Sep.

• Forest margins, shaded moist environments; 500–700 m. Guangxi (Damiang Shan, Dayao Shan).

73. *Begonia imitans* Irmischer, Mitt. Inst. Allg. Bot. Hamburg 10: 511. 1939.

鸡爪秋海棠 ji zhua qiu hai tang

Herbs, deciduous. Tubers globose, 1.1–1.9 cm in diam. Leaves usually 1 or 2, basal; stipules caducous, ovate or oblong, 3–5 × 1.4–1.8 mm, abaxially pilose, apex acuminate; petiole 12–21 cm, brown villous; blade suborbicular, asymmetric, 9–12 × 8.5–1.9 cm, abaxially pilose, adaxially reddish hairy, venation palmate, 5–7-veined, base oblique, cordate, margin incised-serate, divided to 1/2 of leaf length; lobes 5–7, apex acuminate. Inflorescences 15–31 cm tall, pilose when young; bracts caducous, ovate-oblong, ca. 8 mm, membranous, margin ciliate, apex acuminate. Staminate flowers: pedicel 1.3–1.5 cm; tepals 4, outer 2 broadly ovate, 9–11 × 8–10 mm, abaxially hairy, inner 1 obovate, 6.5–7.5 × ca. 3.5 mm; stamens numerous; filaments 1–1.3 mm, free; anthers obovoid, apex emarginate. Pistillate flowers: pedicel 1.2–1.8 cm; tepals 3, outer 2 broadly ovate or suborbicular, ca. 8 × 6–7 mm, abaxially hairy, inner 1 oblong, ca. 5 mm; ovary oblong, 8–10 × 7–8 mm, glabrous, unequally 3-winged, 3-loculed; placentae axile, bilamellate; styles 3, free; stigmas 2-cleft, spiraled. Capsule unknown. Fl. Jun–Jul.

• Moist shaded places in dense forests on slopes; 1300–1400 m. Sichuan (Hongxi, Kangding).

This species is similar to *Begonia taliensis* but differs by lacking lobules on the leaf blade.

74. *Begonia jingxiensis* D. Fang & Y. G. Wei, Acta Phytotax. Sin. 42: 172. 2004.

靖西秋海棠 jing xi qiu hai tang

Begonia mashanica D. Fang & D. H. Qin.

Herbs, rhizomatous. Rhizomes creeping; internodes 0.3–1.1 cm. Leaves all basal; stipules ovate or broadly ovate, 10–12 × 7–10 mm; petiole 3–16 mm, initially whitish hirsute-villous, glabrescent when old; blade obliquely broadly ovate or suborbicular, 3.5–18 × 4–14 cm, herbaceous, abaxially fibrillose, villous on veins, hairs initially whitish, later rusty, adaxially green, dark green, or adorned with a whitish or pale horseshoe-shaped maculation, sparsely appressed rusty fibrillose when young, glabrescent, basally 5–8-veined, base cordate, margin irregularly dentate or denticulate, long ciliate, apex shortly acuminate, obtuse, or rounded. Inflorescences axillary; peduncle 8–23 cm, glabrous or subglabrous; flowers 3–40 in a dichasial

cyme; bracts oblong to elliptic, 1–3 × 0.7–1.5 mm, margin sparsely glandular ciliate. Staminate flowers: pedicel 5–17 mm; tepals 2(–4), suborbicular, obovate, or broadly ovate, 1–1.2 × 1–1.3 cm; androecium zygomorphic; stamens 18–30; filaments 1.5–2.5 mm; anthers oblong to obovoid, apex emarginate. Pistillate flowers: pedicel 5–15 mm; tepals 2, suborbicular, obovate, or oblate, 1–1.8 × 1–2.2 cm; ovary 3-loculed at proximal to middle part, placentation septal. Capsule nodding, ovoid, 11–15 × 8–10 mm, unequally 3-winged; abaxial wing lunate or nearly ligulate, 6–8 mm; lateral wings lunate, 2–3 mm. Fl. Jun–Dec, fr. Aug–Dec.

• Limestone hills and entrances to limestone caves, forests; 100–600 m. Guangxi.

75. *Begonia josephii* A. Candolle, Ann. Sci. Nat., Bot., sér. 4, 11: 126. 1859 [*“josephi”*].

重齿秋海棠 chong chi qiu hai tang

Herbs, deciduous. Tubers 1–1.5 cm in diam. Leaves 1(or 2); stipules caducous, ovate, membranous, margin ciliate; petiole 10–21.5 cm, brown villous; blade peltate, broadly ovate to suborbicular, nearly symmetric, 10–16 × 8.5–13 cm, abaxially brownish pubescent, adaxially hirsute, venation palmate, 7-veined, base rounded, margin denticulate, apex acuminate or caudate-acuminate. Inflorescences terminal, racemose at base, 20–28 cm tall, brown villous; bracts ovate, 5–7 mm, membranous, abaxially hairy. Staminate flowers: pedicel 1–1.8 cm; tepals 4, pink, outer 2 broadly ovate, ca. 6 × 4–5 mm, abaxially hispidulous, apex obtuse, inner 2 oblong, ca. 4 × 1 mm; stamens numerous; filaments ca. 0.8 mm; anthers oblong to obovoid-oblong, ca. 1 mm, apex emarginate. Pistillate flowers: tepals 4–6, unequal, variable in shape; ovary sparsely purplish hairy, 3-loculed; placentae axile, bilamellate; style 3, fused to halfway; stigmas U-shaped. Capsule pendulous, obovoid or subglobose, ca. 7 × 8–9 mm, unequally 3-winged; abaxial wing falcate, to 1.2 cm, apex rounded; lateral wings triangular, 2–3 mm. Fl. Jul–Aug, fr. Aug.

Forests or forest margins, on rocks in moist environments; 2600–2800 m. Xizang (Cona) [Bhutan, NE India, Nepal].

76. *Begonia labordei* H. Léveillé, Bull. Soc. Agric. Sarthe 59: 323. 1904.

心叶秋海棠 xin ye qiu hai tang

Begonia harrowiana Diels; *B. polyantha* H. Léveillé.

Herbs, deciduous. Tubers globose, 1.9–2.9 × 1–1.5 cm. Leaves basal or cauline (on very short stem); stipules small, caducous; petiole 6.5–24.6 cm, glabrous or hairy on upper part; blade ovate, slightly asymmetric, 10–25 × 6–22 cm, subglabrous to abaxially sparsely hirsute, adaxially hispidulous, venation palmate, 5–7-veined, base slightly oblique, cordate, margin unequally serrate, apex acuminate to acute. Inflorescences terminal, racemose at base, 2–6.5 cm tall, glabrous; bracts oblong, 3–4 × ca. 1.5 mm, margin remotely denticulate, apex acute. Staminate flowers: pedicel ca. 1 mm; tepals 4, pink, outer 2 oblong or ovate-oblong, ca. 1 × 6–7 mm, glabrous or abaxially hairy, apex rounded or acute, inner 2 elliptic, ca. 7 × 5 mm, apex obtuse or acute; stamens numerous; filaments fused to

halfway or more, ca. 1 mm; anthers oblong, ca. 1.5 mm. Pistillate flowers: pedicel 8–9 mm; tepals 3(or 4), outer 2 broadly elliptic, 9–10 × ca. 6 mm, glabrous or abaxially hairy, apex rounded or obtuse, inner 1(or 2) narrowly oblong, 6–7 × 2–3 mm, apex rounded or obtuse; ovary glabrous or hairy, 3-loculed; placentae axile, bilamellate; styles 3, fused to halfway or more; stigmas 3, 2-cleft or U-shaped, spiraled or not. Capsule pendulous, oblong-obovoid, ca. 10 × 6–7 mm, unequally 3-winged; abaxial wing triangular; lateral wings much smaller, 0–3 mm. Fl. Aug, fr. Sep. $2n = 24^*$.

- Forest margins, shaded moist rocky slopes; 800–3300 m. Guizhou, Sichuan, Yunnan.

No place of valid publication could be traced for "*Begonia labordei* var. *unialata* Ku in Acta Phytotax. Sin." (see FRPS 52(1): 190. 1999).

77. *Begonia lacerata* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 535. 1939.

撕裂秋海棠 si lie qiu hai tang

Herbs, to 85 cm tall. Rhizomes elongate. Stems erect, sparsely villous when young. Leaves basal and cauline; stipules oblong, 1.6–1.8 cm, subglabrous, apex acuminate and cuspidate; petiole 6.5–16 cm, pilose when young; blade broadly ovate to suborbicular, asymmetric, 7–15 × 9–18 cm, abaxially brownish pubescent, adaxially sparsely setulose, venation palmate, 6–8-veined, base shallowly cordate, margin irregularly denticulate, distinctly divided; lobes obliquely rhombic-ovate, 3–8 × 2–5.5 cm, apex long acuminate or caudate. Inflorescences pilose or subglabrous when young; peduncle ca. 1.5 cm. Staminate flowers: pedicel ca. 1.5 cm; tepals 4, outer 2 broadly ovate, 1.3–1.5 × 1.1–1.3 cm, abaxially pilose, inner 2 broadly elliptic or broadly ovate, 11–12 × 8–9 mm; stamens numerous; filaments entirely fused or nearly so. Pistillate flowers unknown. Capsule nodding, ca. 18 × 9 mm, 2-loculed; placentae axile, bilamellate; unequally 3-winged; abaxial wing broadly ligulate, 1.5–1.8 × ca. 1.3 cm, apex rounded; lateral wings 6–8 mm. Fl. Jul, fr. Aug.

- Forest understories; 1000–1900 m. SE Yunnan (Mengzi).

This species is similar to *Begonia edulis* but differs by its distinctly lobed, abaxially pubescent, and adaxially sparsely setulose leaf blade.

78. *Begonia laminariae* Irmscher, Notes Roy. Bot. Gard. Edinburgh 21: 40. 1951.

圆翅秋海棠 yuan chi qiu hai tang

Herbs. Rhizomes 8–13 mm in diam. Leaves basal; stipules not seen; petiole 35–50 cm, brown villous, more densely so on upper part; blade suborbicular or oblate-orbicular, slightly asymmetric, 18–35 × 19–35 cm, glabrous or subglabrous, venation palmate, 7–9-veined, base slightly cordate, margin remotely and irregularly serrulate, deeply divided to 2/3 of leaf length; lobes 7–9, apex acuminate or long caudate. Inflorescences glabrous or hairy; bracts ovate, glabrous, acuminate. Staminate flowers: tepals 4, glabrous, outer 2 orbicular, ca. 1.3 × 1.1 cm, inner 2 oblong, ca. 11 × 6–7 mm; stamens numerous. Pistillate flowers: tepals 5, glabrous, unequal, largest orbicular, ca. 1.5 × 1.3 cm,

smallest obovate, ca. 14 × 8–9 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, ellipsoid to oblong, 18–20 × 8–10 mm, unequally 3-winged; abaxial wing ligulate or broadly oblong, 9–16 mm, apex rounded; lateral wings 2–6.5 mm. Fl. Jun, fr. Sep. $2n = 22^*$.

Forests or scrubby vegetation, shaded moist environments; 1200–1800 m. Guizhou (Anlong), SE Yunnan [Vietnam].

This species is similar to *Begonia paucilobata* but differs by its 7-lobed leaves, which are deeply divided to ca. 2/3 of the leaf length.

79. *Begonia lancangensis* S. H. Huang, Acta Bot. Yunnan. 21: 13. 1999.

澜沧秋海棠 lan cang qiu hai tang

Herbs, dioecious. Rhizomes short, stout. Stems erect, 80–120 cm tall, 1.2–2.6 cm in diam., puberulous. Leaves cauline; stipules brown, ovate-triangular, 1.2–3.1 × 0.8–1.4 cm, glabrous, apex acuminate; petiole 15–40 cm; blade ovate or ovate-oblong, asymmetric, 10–35 × 7–20 cm, abaxially puberulous on veins, adaxially glabrous, venation palmate, 6- or 7-veined, base oblique, cordate, margin irregularly serrulate, apex acuminate. Inflorescences strongly reduced; bracts ovate, 0.7–1.4 cm, glabrous, apex acute and shortly cuspidate. Flowers fragrant. Staminate flowers: pedicel 1–2 cm; tepals 4, outer 2 greenish at base or white, abaxially puberulous, ca. 2.6 × 3.1 cm, inner 2 white, ca. 2.3 × 1.8 cm; stamens ca. 70; filaments 2–2.5 mm; anthers 4.3–4.8 mm. Pistillate flowers: pedicel 2.5–4 cm; tepals 4, white, outer 2 broadly ovate, 2.5–3.2 × 1.8–2 cm, inner 2 obovate or oblong, 1.8–2 × 0.7–1 cm; ovary obovoid, ca. 1 cm, subglabrous, 4-loculed; placentae axile, bilamellate; styles 4, stigmas 2-cleft, spiraled. Fruit berrylike, 4-horned. Fl. Feb–Mar, fr. Apr–Jul.

- Evergreen broad-leaved forests; ca. 1600 m. Yunnan (Lancang).

This species resembles *Begonia roxburghii* A. Candolle of the Himalayas but differs by its puberulous habit and the stem without red, linear dots.

80. *Begonia lanternaria* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 555. 1939.

灯果秋海棠 deng guo qiu hai tang

Herbs. Rhizomes elongate. Leaves basal; stipules caducous, oblong-ovate, 9–10 × 4–5 mm, membranous; petiole 8–23 cm, sparsely villous; blade abaxially pale brown-green, adaxially deep brown-green, ovate to broadly ovate, asymmetric, 11–13 × 12–14 cm, glabrous, venation palmate, 5-veined, base strongly oblique, deeply cordate, margin densely minutely serrulate, apex shortly caudate. Inflorescences 18–25 cm tall, glabrous; bracts broadly elliptic to broadly ovate, 5–9 × ca. 5 mm, margin glandular ciliate. Staminate flowers: pedicel 9–10 mm; tepals 4, pinkish, outer 2 broadly ovate, 7–9 × 6–7 mm, abaxially subglabrous, inner 1 oblong, ca. 6 × 2 mm; stamens numerous; filaments ca. 1.8 mm; anthers cuneate-obovoid, ca. 1 mm, apex emarginate. Pistillate flowers: pedicel ca. 2 cm; tepals 3, pinkish, outer 2 broadly ovate, inner 1 smaller; ovary

glabrous, 1-loculed; placentae parietal, bilamellate; styles 3. Capsule nodding, oblong-ovoid, ca. 1.2 cm, unequally 3-winged; abaxial wing subtriangular; lateral wings smaller. Fl. Aug, fr. Sep.

On limestone rocks at forest margins. Guangxi (Longzhou) [N Vietnam].

81. *Begonia leprosa* Hance, J. Bot. 21: 202. 1883.

癩叶秋海棠 lai ye qiu hai tang

Begonia bretschneideriana Hemsley.

Herbs, creeping. Rhizomes 5–14 mm in diam. Leaves basal; stipules caducous, ovate, (5–)15–23 mm, membranous, apex cuspidate; petiole 4–13 cm, glabrous to densely brown villous when young; blade sometimes very shallowly peltate, suborbicular, obovate, or broadly ovate, asymmetric, 4–15 × 4.5–21 cm, abaxially glabrous to brown villous, adaxially glabrous, venation palmate, 5–7-veined, base oblique, cordate, margin remotely and minutely serrulate, apex acute or shortly caudate. Inflorescences usually reduced, 1–1.5(–7) cm; bracts ovate, 3.5–15 mm, membranous, margin ciliate. Staminate flowers: pedicel 2–8 mm, glabrous to sparsely villous; tepals 4, white to pink, glabrous, outer 2 abaxially reddish on veins, broadly ovate, 7–26 × 8–29 mm, inner 2 oblong, 5–27 × 2–9 mm; stamens 21–78, free; filaments 0.6–3.8 mm; anthers obovoid to subglobose, 1.1–2.6 mm, apex emarginate. Pistillate flowers: pedicel 4–20 mm; tepals 3, white to pink, glabrous, persistent in fruit, outer 2 abaxially reddish on veins, broadly obovate or suborbicular, 7–18 × 8–18 mm, inner 1 obovate-oblong, ca. 7 × 4 mm; ovary glabrous, 3-loculed; placentae axile, undivided or bilamellate; styles 3, free; stigmas 2-cleft, spiraled. Fruit pendulous, clavate, 1.1–2.2 cm, wingless. Fl. May–Sep, fr. Jun–Oct.

• Semiopen forests or scrubby vegetation, on limestone rocks; 100–800 m. Guangdong, Guangxi.

This is a common species.

82. *Begonia limprichtii* Irmscher, Repert. Spec. Nov. Regni Veg. Beih. 12: 440. 1922.

戴叶秋海棠 ji ye qiu hai tang

Begonia houttuynioides T. T. Yu.

Herbs. Rhizomes elongate; internodes distinct. Leaves basal; stipules caducous, ovate-triangular, 5–7 mm, glabrous, apex acuminate; petiole 3–8 cm, densely brown villous; blade ovate or broadly ovate, asymmetric, 5–8 × 4–7 cm, abaxially villous, adaxially red setose, venation palmate, 7-veined, base shallowly cordate, margin remotely and irregularly denticulate, very shallowly divided, apex shortly caudate or acuminate. Inflorescences 8–16 cm tall, subglabrous or glabrous; peduncle 1–1.3 cm; bracts ovate-lanceolate, 6–10 × 2–4 mm, margin ciliate, apex acuminate and shortly cuspidate. Staminate flowers: pedicel ca. 4 mm; tepals 4, white or rarely pink, outer 2 broadly ovate, 1.8–2 × ca. 1.5 cm, abaxially pilose, inner 2 broadly elliptic, ca. 10 × 5 mm; filaments 1–2 mm; anthers obovoid, ca. 0.8 mm, apex emarginate. Pistillate flowers: pedicel ca. 2.2 cm; ovary pilose, 2-loculed; placentae axile, bilamellate; tepals 4 or 5, unequal, largest suborbicular, broadly oblong, or broadly

ovate, 1.5–1.6 cm, smallest oval or oblong, (3–)10 × (2–)5 mm; styles 2, fused to halfway; stigmas 2-cleft, spiraled. Capsule nodding, obovoid-oblong, 10–13 × 7–9 mm, unequally 3-winged; abaxial wing ligulate, 13–17 × 5–9 mm; lateral wings 3–5 mm. Fl. Jun, fr. Aug. $2n = 22^*$.

• Mountain slopes; 500–1700 m. Sichuan, Yunnan.

This species is similar to *Begonia ruboides* but differs by its very shallowly lobed leaf blade and 2-loculed ovary.

83. *Begonia lipingensis* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 6: 353. 1927.

黎平秋海棠 li ping qiu hai tang

Herbs, rhizomatous. Stems erect, 7–18 cm tall. Leaves mostly basal; stipules caducous; petiole 9–19 cm, rusty villous; blade broadly ovate, slightly asymmetric, 4–6 × 4–6 cm, abaxially sparsely hairy, adaxially hairy, venation palmate, 6- or 7(or 8)-veined, base slightly oblique, cordate, margin irregularly denticulate, distinctly lobed, divided to more than 1/2 of leaf length; lobes 6 or 7(or 8), oblong-ovate or triangular, apex acuminate. Inflorescences 6–12 cm, usually glabrous. Staminate flowers: pedicel 1.5–2.3 cm; tepals 4, pink, outer 2 broadly ovate, 1.4–1.7 × 1.4–1.7 cm, base slightly cordate, abaxially rusty villous, inner 2 obovate, 1–1.1 cm × 6–7 mm; stamens numerous; filaments ca. 3 mm, fused to halfway; anthers oblong-obovoid, ca. 1.2 mm. Pistillate flowers: pedicel ca. 1.3 cm; tepals 6; ovary villous, 2-loculed; placentae axile, bilamellate. Capsule nodding, abaxial wing ca. 1.1 cm, apex rounded; lateral wings ca. 2 mm. Fl. Jul–Aug.

• Forests, scrubby vegetation, on rocks in shaded moist environments; 300–1100 m. Guangxi, Guizhou, Hunan.

This species is similar to *Begonia digyna* but differs by its larger staminate flowers.

84. *Begonia lithophila* C. Y. Wu, Acta Phytotax. Sin. 33: 257. 1995.

石生秋海棠 shi sheng qiu hai tang

Herbs, deciduous. Tubers 8–15 mm in diam. Leaves 1 or 2, basal; stipules caducous; petiole 2–12 cm, glabrous or subglabrous; blade often reddish abaxially, 5-parted, asymmetric, 7–17 × 3–17 cm, abaxially subglabrous, adaxially sparsely hirsute, base cordate, margin serrulate, distinctly divided to 1/2 of leaf length or more; lobes 2–9 cm, apex acuminate. Inflorescences terminal, racemose at base, 12–18(–20) cm, glabrous or subglabrous; bracts oblong-lanceolate, 5–8 mm, margin glandular ciliate. Staminate flowers: pedicel 1–1.8 cm; tepals 4, outer 2 broadly ovate, 10–12 × 7–8 mm, glabrous, inner 2 elliptic, ca. 10 × 3–4 mm; stamens numerous; filaments 1–1.3 cm, free; anthers obovoid, ca. 0.9 mm. Pistillate flowers: tepals 3, outer 2 broadly oblong, ca. 10 × 8 mm, inner 1 oblong, ca. 7 × 2 mm; ovary oblong, glabrous, 3-loculed; placentae axile, undivided; styles 3, ca. 1.5 mm, free; stigmas 2-cleft, spiraled. Capsule pendulous, ellipsoid, unequally 3-winged; abaxial wing lanceolate, ca. 3 cm; lateral wings smaller. Fl. Sep–Oct, fr. Nov. $2n = 24^*$.

• Uplifted coral rocks, limestone caves; 1700–2000 m. Yunnan (Lunan, Yiliang).

85. *Begonia liuyanii* C. I. Peng et al., Bot. Bull. Acad. Sin. 46: 245. 2005.

刘演秋海棠 liu yan qiu hai tang

Begonia gigaphylla Y. M. Shui & W. H. Chen.

Herbs, rhizomatous. Rhizomes creeping, stout, 1–2.5 cm in diam. Leaves all basal; stipules caducous, narrowly triangular, herbaceous; petiole 13–22 cm, villous or lanuginose; blade abaxially pale, adaxially green or dark green, obliquely broadly ovate or suborbicular, 23–50 × 16–40 cm, subleathery, adaxially ± nitid, sparsely setose, basally 6- or 7-veined, tertiary veins percurrent and reticulate, base deeply cordate, margin shortly ciliate, apex shortly acuminate. Inflorescences diffusely thyrsoïd; flowers 13–100 in a thyrsoïd cyme; peduncle 20–41 cm; bracts caducous, ovate or oblong, 1–3 × 1–2.5 mm. Staminate flowers: pedicel 0.7–1.2 cm; tepals 4, outer 2 tepals greenish yellow or sometimes reddish, 7–9 × 8–9 mm, apex rounded or obtuse, rarely acute; inner 2 tepals obovate, oblong, or lanceolate; androecium actinomorphic; stamens 30–40; filaments fused at base; anthers obovoid, apex subtruncate or subemarginate. Pistillate flowers: pedicel 1.5–2.5 cm; tepals 3, yellowish or reddish; ovary ellipsoid, 5–7 × 4–4.5 mm, glandular hispid, unequally 3-winged, 1-loculed with parietal placentation; styles 3, fused at base. Capsule nodding, 8–11 × ca. 5 mm. Fl. Apr–Sep, fr. Jun–Feb. $2n = 30^*$.

• Broad-leaved forests, shaded, rocky limestone slopes; ca. 200 m. Guangxi (Longzhou).

86. *Begonia longanensis* C. Y. Wu, Acta Phytotax. Sin. 35: 54. 1997.

隆安秋海棠 long an qiu hai tang

Herbs, creeping. Rhizomes elongate. Leaves basal; stipules caducous; petiole ca. 20 cm, hispidulous; blade suborbicular or broadly ovate, asymmetric, ca. 15 × 16.5 cm, abaxially hispidulous, adaxially glabrous or subglabrous, venation palmate, 8-veined, base oblique, deeply cordate, margin remotely denticulate, apex shortly caudate. Inflorescences ca. 12 cm tall, pubescent; bracts not seen. Staminate flowers: pedicel 5–12 mm; tepals 4, outer 2 broadly ovate, ca. 11 × 8 mm, abaxially puberulous, adaxially with purple, orbicular dots, inner 2 obovate-oblong, ca. 10 × 5 mm; stamens numerous; filaments 1.2–1.5 mm, free; anthers obovoid-oblong, ca. 1 mm, apex emarginate. Pistillate flowers: tepals unknown; ovary obovoid-oblong, densely shortly setose, 2-loculed; placentae axile, bilamellate. Capsule nodding, obovate-oblong, ca. 2 × 6–7 mm, unequally 3-winged; abaxial wing triangular; lateral wings smaller. Fl. Jun.

• Guangxi (Long'an).

87. *Begonia longialata* K. Y. Guan & D. K. Tian, Acta Bot. Yunnan. 22: 132. 2000.

长翅秋海棠 chang chi qiu hai tang

Herbs, glabrous throughout. Rhizomes elongate. Stems 30–50 cm tall, with many red, linear dots. Leaves basal and cauline; stipules 1.6–1.9 × 1.2–1.3 cm; petiole 13–31 cm, glabrous, with red linear spots; blade suborbicular, slightly asym-

metric, 24–44 × 24–41 cm, venation palmate, 5–9-veined, base deeply cordate, margin irregularly serrulate, distinctly divided to 2/3 of leaf length; lobes 5–7, apex acuminate; lobules present. Inflorescence glabrous, 11–23-flowered; peduncle 5–10 cm, with red linear dots; bracts reddish, ovate, 1.8–2.5 cm. Staminate flowers: pedicel 2–5 mm; tepals 4, white to pink, glabrous, outer 2 suborbicular, 1.5–1.7 × 1.3–1.8 cm, inner 2 narrowly obovate, 10–17 × 8–10 mm; stamens ca. 160; filaments 3–5.5 mm; anthers obovoid, 1.3–1.7 mm. Pistillate flowers: pedicel 1.8–4.8 cm; tepals 5, white to pink, unequal, largest broadly obovate, 1.4–2.3 × 1.2–1.8 cm, smallest obovate to elliptic, 1.3–2.1 × 1–1.6 cm; ovary often brownish red, 2-loculed; placentae axile, bilamellate; styles 2(or 3), 4.2–4.8 mm, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, obovoid, ca. 1.6 × 1 cm, unequally 3-winged; wings brownish red, abaxial wing 3–5 cm; lateral wings ca. 2 mm. Fl. Aug–Dec.

• Rocky slopes; ca. 900 m. SW Yunnan (Gengma).

This species resembles *Begonia macrotoma* but differs by its stem, petioles, and peduncle having conspicuous, red, linear dots and the much longer (3–5 cm) abaxial wing of the capsule.

88. *Begonia longicarpa* K. Y. Guan & D. K. Tian, Acta Bot. Yunnan. 22: 131. 2000.

长果秋海棠 chang guo qiu hai tang

Herbs, fragile, 15–30 cm tall. Rhizomes elongate, 5–17 mm in diam. Leaves basal; stipules triangular, 5–10 mm, glabrous, apex acuminate and cuspidate; petiole 10–25 cm, minutely hairy; blade adaxially dark green, narrowly elliptic, asymmetric, 5–26 × 3.5–15 cm, glabrous or abaxially minutely hairy on veins, venation palmate-pinnate, 5–10-veined, base oblique, cordate, margin remotely and minutely serrulate, apex shortly acuminate. Inflorescences many, arising from rhizome, 5–14 cm tall, hairy; peduncle 3–5 cm. Flowers scented. Staminate flowers: tepals 4, white, outer 2 broadly ovate to orbicular, 1.9–2 × 1–1.8 cm, abaxially minutely hairy, inner 2 oblong to broadly oblong, 7–15 × 3–12.3 mm; stamens ca. 120, fused at base. Pistillate flowers: tepals 3, white, outer 2 broadly ovate or obovate, 1.5–1.7 × 1–1.9 cm; inner 1 elliptic, ca. 13 × 7 mm; ovary clavate, sparsely shortly pilose when young, 3-loculed; placentae axile, bilamellate; styles 3, free; stigmas 2-cleft, spiraled. Capsule pendulous, clavate, trigonous, 4–5 cm × 5–6 mm, wingless. Fl. Nov–Dec. $2n = 20^*$.

Broad-leaved forests or scrubby vegetation, on forest floor with abundant leaf litter and humus; 100–200 m. SE Yunnan (Hekou) [Vietnam].

89. *Begonia longifolia* Blume, Catalogus, 102. 1823.

粗喙秋海棠 cu hui qiu hai tang

Begonia aptera Hayata (1911), not Blume (1827), nor Roxburgh (1832), nor Decaisne (1834); *B. crassirostris* Irmischer; *B. hayatae* Gagnepain.

Herbs, erect. Rhizomes short, stout. Stems 0.5–1.5 m tall, well branched. Leaves cauline; stipules caducous, narrowly to broadly ovate, to 2.4 × 1.9 cm, glabrous, apex acuminate; petiole 8–15 cm, glabrous or subglabrous; blade lanceolate to broadly lanceolate, asymmetric, 8.5–29 × 3.4–11 cm, glabrous

or subglabrous, venation palmate-pinnate, 7–10-veined, base oblique, cordate, margin remotely and irregularly denticulate. Inflorescences strongly reduced, to 5 cm, pendulous; bracts caducous, ovate to narrowly triangular, to 1.9×1.2 cm, thickly papery, glabrous, margin entire, apex mucronate to acuminate. Staminate flowers: pedicel 5–12 mm; tepals 4, white, outer 2 oblong to very broadly ovate, $0.9\text{--}1.3$ cm \times $5\text{--}10$ mm, glabrous, inner 2 elliptic, $0.6\text{--}1.5$ cm \times $4\text{--}8.2$ mm; stamens 49–93; filaments free, $0.7\text{--}2.5$ mm; anthers lorate to broadly lorate, $1.7\text{--}2.6$ mm, apex emarginate. Pistillate flowers: pedicel 5–12 mm; tepals 6, white, subequal, broadly elliptic to orbicular, $7\text{--}12 \times 5\text{--}9$ mm; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, spiraled. Capsule pendulous, subglobose, $1.1\text{--}1.8$ cm in diam., wingless or 3-horned. Fl. Apr–May, fr. Jul. $2n = 22^*$.

Forests, shaded moist environments; 200–2200 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Taiwan, Yunnan [Bhutan, NE India, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam].

Nearly all species of *Begonia* are very narrowly distributed. *Begonia longifolia* is probably the most widespread species in the genus. It resembles *B. acetosella* when sterile, differing by being monoecious, having a 3-loculed ovary, 6-tepaled pistillate flowers, and a remotely denticulate leaf margin.

90. *Begonia longistyla* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 367. 2005.

长柱秋海棠 chang zhu qiu hai tang

Herbs, rhizomatous. Rhizomes $7\text{--}10$ cm \times $2\text{--}4$ mm, sparsely hairy. Leaves all basal; stipules generally persistent, reflexed, triangular; petiole $3\text{--}5$ cm, densely strigose; blade ovate, $6\text{--}10 \times 4\text{--}6$ cm, papery, rugose, abaxially densely hairy on veins, adaxially densely tuberculate based pilose-setulose, base obliquely deeply cordate, margin serrulate and ciliate, apex obtuse. Inflorescences with 20–40 flowers in a dichasial cyme; peduncle $4\text{--}8$ cm, glabrous; bracts ovate, apex mucronate. Staminate flowers: pedicels $7\text{--}8$ mm, glabrous; bracteoles ovate, $2\text{--}3 \times 1\text{--}1.5$ mm, apex obtuse; tepals 4, glabrous, outer 2 green, orbicular, $4\text{--}5$ mm in diam., inner 2 greenish, obovate, $4.5\text{--}5 \times 3\text{--}3.5$ mm; stamens numerous; filaments fused up to half from base; anthers obovoid, $0.3\text{--}0.4 \times 0.3\text{--}0.4$ mm, apex emarginate. Pistillate flowers: tepals 3, glabrous; ovary coniform, $7\text{--}8 \times 3\text{--}4$ mm, glabrous, 3-winged, apex with beak $1.5\text{--}2$ mm, 1-loculed with parietal placentation; styles 3, usually fused up to half from base. Capsule nodding, ovate, $6\text{--}7 \times 3\text{--}4$ mm, with 3 persistent styles; wings 3, subequal, lunate, glabrous. Fl. Feb–Jun, fr. from Apr–Jun.

• Limestone slopes in dense broad-leaved forests, at streamsides; 200–300 m. Yunnan (Gejiu, Hekou).

91. *Begonia lukuana* Y. C. Liu & C. H. Ou, Bull. Exp. Forest Natl. Chung Hsing Univ. 4: 6. 1982.

鹿谷秋海棠 lu gu qiu hai tang

Herbs, erect. Rhizomes short. Stems to $45\text{--}90$ cm tall, glabrous. Leaves all cauline; stipules caducous, narrowly ovate to ovate, to 2.8×2 cm; petiole $6\text{--}26$ cm, glabrous; blade abaxially purple-red, adaxially usually dark green, lanceolate to narrowly

ovate, asymmetric, $9\text{--}33 \times 5\text{--}14$ cm, remotely scaberulous, venation palmately-pinnate, 7–10-veined, base oblique, cordate, margin irregularly serrulate, apex acuminate to cuspidate. Inflorescences glabrous, $6\text{--}13$ cm; peduncle to 9 cm; bracts caducous, narrowly ovate, to 2.4×1.5 cm, glabrous. Staminate flowers: tepals 4, white or pinkish, outer 2 obovate to very broadly ovate, $0.7\text{--}1.5$ cm \times $6\text{--}13$ mm, inner 2 oblanceolate to narrowly obovate, $0.6\text{--}1.4$ cm \times $5\text{--}11$ mm; stamens 64–89; filaments $1.2\text{--}1.9$ mm; anthers narrowly oblong, $1.9\text{--}2.2$ mm. Pistillate flowers: tepals 5(or 6), white or pinkish, glabrous, unequal to subequal, narrowly obovate to broadly ovate, largest $0.8\text{--}1.4 \times 0.7\text{--}1.3$ cm, smallest $7\text{--}12 \times 3\text{--}7$ mm; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, spiraled. Capsule pendulous to nodding, ovoid, $1.2\text{--}1.5$ cm, unequally 3-winged; abaxial wing $1.6\text{--}2.2$ cm; lateral wings smaller. $2n = 52^*$.

• Shaded moist forest floors, trailsides; 700–1600 m. WC Taiwan (Jiayi, Nantou).

92. *Begonia luochengensis* S. M. Ku et al., Bot. Bull. Acad. Sin. 45: 357. 2004.

罗城秋海棠 luo cheng qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, $8\text{--}20$ mm in diam. Leaves all basal; stipules triangular-ovate, $7\text{--}10 \times 7\text{--}9$ mm; petiole $8\text{--}30$ cm, hirsute-villous; blade abaxially reddish, adaxially with a white band along midvein, pale green near major veins, dark brownish to purplish red between major veins, obliquely ovate to ovate, $10\text{--}25 \times 5\text{--}18$ cm, papery, both surfaces densely pilose, basally 7-veined, tertiary veins fine, randomly reticulate, base cordate, margin denticulate, apex acuminate to caudate. Inflorescences with 7–14 flowers in a dichasial cyme; peduncle $8\text{--}22$ cm; bracts oblong. Staminate flowers: tepals 4, outer 2 ovate-orbicular, $1.1\text{--}1.2 \times 1.2\text{--}1.3$ cm, inner 2 broadly oblanceolate, ca. 12×6.5 mm; androecium zygomorphic; stamens 20–27; filaments nearly free, subequal, apex subemarginate. Pistillate flowers: tepals 3, outer 2 pinkish, broadly ovate-orbicular, $1.3\text{--}1.4 \times 1.5\text{--}1.7$ cm, inner 1 obovate, apex rounded; ovary pinkish, glabrous, unequally 3-winged, 1-loculed with parietal placentation; abaxial wing oblong to nearly triangular; styles 3, nearly free; stigmas U-shaped or nearly reniform. Capsule nodding, $11\text{--}17 \times 6\text{--}7$ mm. Fl. Aug–Nov, fr. Sep–Dec. $2n = 30^*$.

• Semishaded, dry or slightly moist limestone hills; 200–300 m. Guangxi (Luocheng).

93. *Begonia luzhaiensis* T. C. Ku, Acta Phytotax. Sin. 37: 287. 1999.

鹿寨秋海棠 lu zhai qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, $5\text{--}15$ mm in diam.; internodes $3\text{--}5$ mm. Leaves all basal; stipules triangular; petiole $5\text{--}19$ cm, hirsute-villous or sparsely villous; blade adaxially often pale green to white on angles between or near veins, obliquely ovate or suborbicular, $5\text{--}20 \times 4\text{--}13$ cm, often angularly shallowly lobed, abaxially sparsely or moderately hirsute on veins, adaxially pilose, sparsely tomentose, or very sparsely scaberulous, basally 5- or 6-veined, tertiary veins fine, random-

ly reticulate, base deeply cordate, margin denticulate or crenulate, apex acuminate or acute. Inflorescences with 8–10 flowers in a dichasial cyme; peduncle 9–35 cm. Staminate flowers: tepals 4, outer 2 ovate, broadly ovate, or suborbicular, 5–14 × 5–10 mm, apex obtuse or acute, inner 2 oblanceolate, 3–10 × 2–4 mm; androecium zygomorphic; stamens 10–55; filaments 1–1.5 mm; anthers oblong, 1–1.2 mm, apex subemarginate. Pistillate flowers: tepals 3, outer 2 5–14 × 5–15 mm, inner 1 oblanceolate, 3–10 × 2–4 mm; ovary glabrous; placentae parietal; styles 3. Capsule nodding, ellipsoid, 6–18 × 4–6 mm, unequally 3-winged; abaxial wing oblong or triangular, 5–13 mm, apex obtuse or acute. Fl. May–Nov, fr. Jun–Jan.

• Limestone hills, rocky slopes, in caves with some penetrating light; 100–700 m. Guangxi.

94. *Begonia macrotoma* Irmscher, Notes Roy. Bot. Gard. Edinburgh 21: 41. 1951.

大裂秋海棠 da lie qiu hai tang

Herbs, to 40 cm tall. Rhizomes elongate, 5–20 mm in diam. Stems glabrous. Leaves basal and cauline; stipules ovate, ca. 1.9 × 1.2 cm, glabrous; petiole 7–15.5 cm, glabrous; blade oblong, slightly asymmetric, 12–15 × 14–18 cm, abaxially glabrous, adaxially sparsely hirsute, venation palmate, 5–7-veined, base slightly oblique, cordate, margin irregularly serrulate, divided to 2/3 of leaf length; lobes 5–7, apex acuminate; lobules present. Inflorescence glabrous; peduncle 5–15 cm; bracts oval, ca. 13 × 8 mm. Staminate flowers: pedicel ca. 1.9 cm; tepals 4, pink, outer 2 broadly elliptic, ca. 10 × 7 mm, inner 2 ovate, ca. 7 × 5 mm; stamens numerous; filaments 1–2 mm; anthers oblong, 1–1.2 mm; connectives elongate. Pistillate flowers: pedicel 1.4–2 cm; ovary obovoid, ca. 1.2 cm, 2-loculed; placentae axile, bilamellate; tepals ?3, outer 2 broadly elliptic, ca. 1.5 × 1.1 cm, inner 1 elliptic, ca. 12 × 7 mm; styles 2.5–6 mm, fused to halfway; stigmas 2, spiraled. Capsule nodding, obovoid-oblong, 1.5–2 cm × ca. 7 mm, unequally 3-winged; abaxial wing ca. 4 mm; lateral wings smaller. Fl. Aug, fr. Sep.

Forests, by streams; 1200–1500 m. Yunnan (Lincang, Shuangjiang) [NE India, Nepal, Vietnam].

95. *Begonia malipoensis* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 333. 1994.

麻栗坡秋海棠 ma li po qiu hai tang

Herbs. Rhizomes short. Stems repent, ascendent on upper part, red hirsute. Leaves cauline; stipules ovate-triangular, ca. 1 × 0.5 cm, abaxially puberulous, apex acuminate; petiole 5–15 mm, densely red hirsute; blade abaxially red on veins, ovate, asymmetric, 7–8 × 9–11 cm, herbaceous, abaxially densely hirsute, adaxially sparsely setulose, base oblique, cordate, margin serrate, shallowly divided; lobes 5 or 6, triangular, apex acute. Inflorescences densely red hirsute; peduncle 3–8 cm. Staminate flowers: pedicel red, ca. 0.7 cm, densely red setulose; tepals 4, pink, outer 2 broadly elliptic, ca. 8 × 5 mm, abaxially red hirsute, inner 2 suborbicular, ca. 4 mm in diam., abaxially red hirsute; stamens numerous; filaments free, ca. 1 mm; anthers obovoid-oblong, ca. 1 mm, apex widened, obtuse. Pistillate flowers: pedicel ca. 1.1 cm; tepals ?4, pink, outer 2 obovate-oblong,

2.5 × 1.5 cm, inner 2 sparsely red setulose; ovary red hirsute, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, spiraled. Capsule obovoid, ca. 1 cm, unequally 3-winged; abaxial wing ligulate; lateral wings subequal.

• Shaded, scrubby mountain slopes; ca. 1300 m. Yunnan (Malipo).

96. *Begonia manhaoensis* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 21: 21. 1999.

蛮耗秋海棠 man hao qiu hai tang

Herbs. Rhizomes elongate; 1.2–2 cm in diam. Leaves basal; stipules persistent, ovate-lanceolate, 1.3–2.6 cm, hairy, apex acuminate; petiole 11–35 cm, sulcate, densely villous; blade dark green, broadly ovate, asymmetric, 26–33 × 17–25 cm, herbaceous, abaxially pubescent, adaxially sparsely pubescent when young, venation palmate, base oblique, cordate, margin very shallowly lobed, apex acute to acuminate. Inflorescences 9–43 cm, villous; peduncle 4–28 cm, 3–6 mm in diam.; bracts caducous, ca. 2.3 × 1.6 cm. Staminate flowers: pedicel 1.1–4.2 cm; tepals 4, white or pinkish, glabrous, outer 2 ovate, 12–15 × 9–15 mm, inner 2 oblong, 12–18 × 7–12 mm; stamens 50–150; filaments fused to halfway; anthers narrowly ovoid to oblong, apex acute. Pistillate flowers: pedicel 2.8–4.2 cm; ovary glabrous, 2-loculed; placentae axile, bilamellate; tepals 5, white or pinkish, elliptic-oblong, glabrous, unequal, largest 10–15 × 8–13 mm, smallest 11–18 × 5–11 mm; styles 2, fused to halfway, 6.2–9.2 mm; stigmas 2-cleft, spiraled. Capsule nodding, ca. 2 cm, unequally 3-winged; abaxial wing ligulate, 1.5–2.4 cm; lateral wings 4–6 mm.

• Forest understories; 300–800 m. Yunnan (Longling, Pingbian).

97. *Begonia masoniana* Irmscher ex Ziesenhenné, Begonia 38: 52. 1971.

铁甲秋海棠 tie jia qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, 1.5–2.3 cm in diam. Leaves all basal; stipules triangular, manifestly keeled; petiole 10–30 cm, hirsute-villous; blade abaxially pale green, adaxially with broad blackish brown (red abaxially) bands along main veins, obliquely broadly ovate to suborbicular, 10–25 × 9–20 cm, abaxially sparsely villous or hispid on veins, adaxially with many hairy tipped pustules, sparsely long setose or hirsute, basally 5–7-veined, base deeply cordate, margin densely denticulate, apex acuminate or shortly caudate. Inflorescences axillary; peduncle 10–54 cm, sparsely glandular pilose; pedicel 5–14 mm; bracts and bracteoles ovate or oblong to lanceolate, 3–5 × 2–3 mm, membranous, margin glandular ciliate, apex acute, caducous; flowers 20–100 in a dichasial cyme. Staminate flower: tepals 4, outer 2 broadly ovate or suborbicular, 5–11 × 6–12 mm, inner 2 oblong, 5–8 × 2–4.5 mm, apex obtuse; androecium actinomorphic; stamens 40–55; anthers obovoid, apex truncate or subemarginate. Pistillate flower: tepals 3, outer 2 broadly ovate, oblong-obovate or suborbicular, (6–)8–12 × (4–)7–13 mm, abaxially glandular hispid, apex rounded, inner 1 oblong or obovate, 5–7.5 × 2–4.5 mm, apex obtuse; ovary oblong, red glandular hispid, placentae parietal; styles 3. Capsule nodding, oblong to ellipsoid, 9–13 × 5–6 mm, reddish, glandular hispid,

unequally 3-winged, largest wing obliquely lunate or ligulate, 4–9 mm. Fl. Mar–Sep, fr. Jun–Sep.

Rocky limestone slopes, in caves under dense forests or shruberies; 100–300 m. Guangxi (Daxin, Pingxiang) [Vietnam].

Begonia masoniana var. *maculata* S. K. Chen et al. (Acta Bot. Yunnan. 8: 222. 1986) was described from a cultivated plant in Kunming, Yunnan. However, it is from Vietnam and does not occur wild in China. It has subsequently been raised to species rank under the name *B. variegata* Y. M. Shui & W. H. Chen (Acta Bot. Yunnan. 27: 372. 2005), based on the same type.

98. *Begonia megalophyllaria* C. Y. Wu, Acta Phytotax. Sin. 33: 272. 1995.

大叶秋海棠 da ye qiu hai tang

Herbs. Rhizomes elongate, stout, to 3.5 cm in diam. Leaves basal; stipules caducous, 1.2–2.7 × 1.2–1.5 cm, membranous; petiole 20–35 cm, glabrous; blade broadly ovate, asymmetric, 23–26 × 32–34 cm, glabrous, venation palmate, 10- or 11-veined, base oblique, cordate, margin irregularly remotely serrulate, apex rounded or acute. Inflorescences glabrous. Staminate flowers: pedicel 1.5–2.2 cm; tepals 4, white, outer 2 ovate, 9–13 × 10–16 mm, inner 2 ovate, 9–16 × 8–11 mm; stamens ca. 200; filaments 3.3–6.7 mm; anthers 1.8–2.5 mm. Pistillate flowers: pedicel 1.5–2 cm; tepals 5, white, unequal, broadly ovate to ovate, largest 12–14 × 9–10 mm, smallest 14–15 × 8–11 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, free, ca. 6.8 mm; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing ligulate, ca. 1.2 × 6–7 cm, apex obtuse; lateral wings lunate, ca. 3 mm. Fr. Oct.

• Shaded moist forests, on steep slopes; 800–1000 m. Yunnan (Pingbian).

99. *Begonia mengtzeana* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 536. 1939.

蒙自秋海棠 meng zi qiu hai tang

Herbs, erect. Stems 1.5–2 mm in diam., brown villous. Leaves basal and cauline; stipules persistent, suborbicular or reniform, 6–7 × 8–12 mm, abaxially setose, margin irregularly ciliate, apex obtuse or rounded; petiole 0.5–4 cm, densely brown villous; blade purple, light green on veins, ovate or broadly ovate, rarely oblate-orbicular, asymmetric, 5–6 × 5–8 cm, sparsely hispidulous, venation palmate, 5- or 6-veined, base oblique, cordate, margin irregularly denticulate, distinctly divided; lobes 3–5, triangular, apex long acuminate or long caudate. Inflorescences brown villous; peduncle 2.4–3.4 cm; bracts ovate, 9–10 × 6–7 mm, margin ciliate, apex shortly acuminate. Staminate flowers: tepals 4, white, outer 2 oval, 1.8–2.2 × 1.5–1.8 cm, abaxially villous, inner 2 obovate, 1.4–1.8 × 1–1.2 cm; filaments fused at base; anthers obovoid, 1–1.2 mm. Pistillate flowers: tepals 5, white, unequal, largest oval, 1.5–1.7 × 1.2–1.3 cm, abaxially villous, smallest elliptic, ca. 9 × 6.5 mm, glabrous; ovary oblate-obovoid, 6–7.5 × 3.5–4.5 mm, densely brown villous, 2-loculed; placentae axile, bilamellate; styles 2, 2.3–3 mm, fused at base; stigmas 2-cleft, spiraled. Capsule immature, unequally 3-winged; abaxial wing subtriangular; lateral wings smaller. Fl. Oct, fr. Dec.

• Forests, shaded moist environments; 1700–2500 m. Yunnan (Mengzi).

100. *Begonia miranda* Irmscher, Notes Roy. Bot. Gard. Edinburgh 21: 36. 1951.

截裂秋海棠 jie lie qiu hai tang

Herbs. Rhizomes elongate, 1–2 cm in diam. Leaves basal; stipules caducous; petiole to (11–)28–32 cm, densely reflexed scalelike hairy; blade ovate to suborbicular, slightly asymmetric, 16–21 × 12–20 cm, abaxially hispidulous and scalelike hairy on veins, adaxially sparsely hispidulous, venation palmate, 5–7-veined, base slightly oblique, cordate, margin remotely serrulate, distinctly divided to 2/3 of leaf length; lobes 5–7, apex acuminate or acute; lobules triangular. Inflorescences with reflexed scalelike hairs; bracts oblong, ca. 9 × 5 mm, glabrous, apex shortly acuminate. Staminate flowers: pedicel ca. 2 cm; tepals 4, pink, outer 2 oblate, ca. 1.5 × 1.9 cm, inner 2 oblong, ca. 11 × 5 mm; stamens numerous; filaments 1–3 mm; anthers obovoid-cuneate, 1–2 mm, apex emarginate or obtuse. Pistillate flowers: pedicel 2.4–3 cm; tepals 6; ovary 3-loculed; placentae axile, bilamellate. Capsule nodding, ovoid-oblong, 1.8–2 cm, unequally 3-winged; abaxial wing broadly ligulate, ca. 1.5 cm; lateral wings lunate, 3–4 mm. Fl. Oct, fr. Nov.

• Forests, shaded moist environments; 1200–1600 m. Yunnan (Jingping, Pingbian).

101. *Begonia modestiflora* Kurz, Flora 54: 296. 1871.

云南秋海棠 yun nan qiu hai tang

Begonia yunnanensis H. Léveillé, Repert. Spec. Nov. Regni Veg. 7: 20. 1909; *B. yunnanensis* var. *hypoleuca* H. Léveillé.

Herbs, deciduous. Tubers subglobose. Stems erect, 14–40 cm tall, glabrous, lower part repent, slender, rooting at nodes. Leaves cauline; stipules ovate, 5–7 mm, membranous, margin denticulate and ciliate, apex acuminate and shortly cuspidate; petiole 1.8–5.5 cm, glabrous; blade triangular, asymmetric, 3.5–8 × 2.5–5 cm, both surfaces glabrous, venation palmate, 5–7-veined, base strongly oblique, shallowly cordate, margin irregularly serrate, apex long acuminate. Inflorescences terminal and axillary, glabrous; terminal inflorescence with distal staminate flowers and basal pistillate flowers; axillary inflorescences with 1 or 2 pistillate flowers; bracts ovate, 6–7 mm, margin denticulate and ciliate, apex acuminate and cuspidate. Staminate flowers: pedicel 6–10 mm; tepals 4, pink, outer 2 broadly ovate, 5–7 × ca. 4.5 mm, glabrous, inner 2 narrowly elliptic, ca. 3 × 1 mm; stamens numerous; filaments fused at base; anthers narrowly elliptic, ca. 1.2 mm, apex acute. Pistillate flowers: bracteole 1, caducous, margin denticulate; tepals 5, unequal, largest broadly ovate, 7–8 × 6–7 mm, glabrous, apex obtuse or acute, smallest narrowly elliptic, 6–7 × ca. 1.5 mm, apex obtuse; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, spiraled. Capsule pendulous, ca. 10 × 6 mm, unequally 3-winged; abaxial wing triangular, 1.3–1.5 cm; lateral wings smaller. Fl. Aug, fr. Sep.

Forests, shaded moist environments by streams; 500–1400 m. Yunnan (Jinghong, Simao) [India, Myanmar, Nepal, Thailand].

102. *Begonia morifolia* T. T. Yu, Bull. Fan Mem. Inst. Biol., n.s., 1: 119. 1948.

桑叶秋海棠 sang ye qiu hai tang

Begonia anceps Irmscher.

Herbs. Stems to 40 cm, slender and trailing at base, erect above, villous when young. Leaves cauline; stipules triangular-ovate, 8–10 mm, abaxially villous; petiole 1.5–2.5 cm, densely villous; blade ovate or narrowly ovate, asymmetric, 6–9 × 3.5–4.5 cm, papery, sparsely hispidulous, venation palmate-pinnate, base oblique, cordate, margin sharply denticulate, apex long acuminate. Inflorescences hairy; bracts ovate, 8–9 mm, abaxially pubescent, margin serrate. Staminate flowers: pedicel ca. 1.5 cm; tepals 4(or 5), pink, hairy, outer 2 ovate, ca. 1.5 × 1 cm, abaxially villous, inner 2 narrow, ovate-oblong, ca. 8 × 2 mm; stamens numerous; filaments ca. 1.2 mm, free; anthers elliptic, ca. 1 mm, apex emarginate. Pistillate flowers: tepals 5, hairy, outer 2 broadly ovate, ca. 10 × 8 mm, inner 2 narrow, ovate-oblong, ca. 7 × 3.5 mm; ovary 3-loculed; placentae axile, bilamellate; styles 3; stigmas 2-cleft, spiraled. Capsule pendulous, oblong, ca. 10 × 7 mm, unequally 3-winged. Fl. Oct–Nov, fr. Dec.

• Forests, shaded moist environments; 1300–1600 m. Yunnan (Malipo, Xichou).

This species is similar to *Begonia alveolata* but differs by its sharply denticulate leaf margin and abaxially hairy outer tepals.

103. *Begonia morsei* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 554. 1939.

龙州秋海棠 long zhou qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, tortuous, crisped-pilose. Leaves all basal; stipules caducous, ovate or triangular, 5–7.5 × 3–4 mm, ciliate; petiole 4–16 cm, hirsute-villous; blade adaxially with a whitish band, obliquely broadly ovate, 5–14 × 4–10.5 cm, papery, abaxially crisped-pilose, major veins villous, adaxially densely tuberculate-based setulose, basally 5–7-veined, tertiary veins percurrent and reticulate, base cordate, margin denticulate or serrulate, apex acute or acuminate. Inflorescences axillary; peduncle 6.5–12 cm; flowers 3–15 in a dichasial cyme; bracts caducous. Staminate flower: pedicel 0.6–2 cm; tepals 4, outer 2 broadly ovate or suborbicular, 6–11 × 6.5–10 mm, apex rounded, inner 2 obovate-oblong, ca. 7 × 3 mm, apex obtuse; androecium zygomorphic; stamens numerous; filaments 0.7–1.3 mm, fused at base into a short column; anthers obovoid, 0.7–0.9 mm. Pistillate flower: tepals 3, outer 2 broadly ovate, inner 1 smaller; ovary ellipsoid, glabrous, 1-loculed with parietal placentation; styles 3. Capsule nodding, oblong, 5–10 × 3.5–5 mm, subequally 3-winged, wings lunate.

• Rock walls of caverns, shaded rocky places of forest understories, understories of secondary forests on limestone hills; ca. 700 m. Guangxi.

- 1a. Leaf blade adaxially with a white, ring-shaped band; inflorescences and flowers glabrous 103a. var. *morsei*
 1b. Leaf blade adaxially with white spots in intercostal areas; inflorescences and flowers hairy 103b. var. *myriotricha*

103a. *Begonia morsei* var. *morsei*

龙州秋海棠(原变种) long zhou qiu hai tang (yuan bian zhong)

Leaf blade adaxially with a white, ring-shaped band. Inflorescences and flowers glabrous.

• Rock walls of caverns, shaded rocky places of forest understories. Guangxi (Longzhou).

103b. *Begonia morsei* var. *myriotricha* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 368. 2005.

密毛龙州秋海棠 mi mao long zhou qiu hai tang

Leaf blade adaxially with white spots in intercostal areas. Inflorescences and flowers hairy.

• Understories of secondary forests on limestone hills; ca. 700 m. Guangxi (Debao).

This variety is somewhat similar to *Begonia picturata* but differs by its much smaller flowers and intercostal spots on the adaxial leaf surface.

104. *Begonia muliensis* T. T. Yu, Bull. Fan Mem. Inst. Biol., n.s., 1: 119. 1948.

木里秋海棠 mu li qiu hai tang

Herbs, deciduous, 20–30 cm tall. Tubers 1–2 cm in diam. Leaves 1(or 2); stipules caducous, triangular-ovate, ca. 5 mm, membranous; petiole 14–21 cm, pilose; blade broadly cordate-ovate, asymmetric, 9–14 × 11–17 cm, abaxially sparsely hispidulous, adaxially sparsely hirsute, venation palmate, 7-veined, base cordate, slightly asymmetric, margin irregularly serrate, shallowly divided to ca. 1/3 of leaf length; lobes 5–7, apex acuminate. Inflorescences terminal, racemose at base, 16–30 cm tall, pilose; bracts ovate-lanceolate, ca. 5 mm, glabrous, apex acute. Staminate flowers: pedicel 8–12 mm; tepals 4, pinkish, outer 2 broadly ovate, ca. 10 × 9 mm, abaxially pilose, inner 2 oblanceolate, 9–11 × 3–4 mm; stamens numerous; filaments ca. 1.2 mm, fused at base; anthers broadly oblong, ca. 1.2 × 1 mm, apex emarginate. Pistillate flowers: pedicel 2–2.5 cm; tepals 3, outer 2 ovate, ca. 8 × 6 mm, abaxially pilose or subglabrous, inner 1 elliptic, ca. 6 × 3 mm; ovary glabrous, veins distinct, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, U-shaped. Capsule pendulous, obovoid-oblong to oblong, 8–10 × 5–6 mm, unequally 3-winged; abaxial wing triangular, ca. 1.5 × 1 cm; lateral wings smaller. Fl. Aug, fr. Sep. $2n = 24^*$.

• Forests, rocks in moist environments; 1800–2600 m. SW Sichuan, Yunnan (Zhongdian).

This species is scarcely distinguishable from *Begonia taliensis*; it differs merely by the relatively shallowly lobed leaves.

105. *Begonia nantoensis* M. J. Lai & N. J. Chung, Quart. J. Exp. Forest. 6: 60. 1992.

南投秋海棠 nan tou qiu hai tang

Herbs. Rhizomes elongate. Stems to 100 cm tall, pubescent when young. Leaves basal and cauline; stipules caducous, ovate, ca. 1.5 cm; petiole 8–25 cm, pubescent when young;

blade ovate, asymmetric, 12–18 × 8–14 cm, pubescent, venation palmate, 8–10-veined, base oblique, cordate, margin irregularly denticulate, apex acuminate. Inflorescences pubescent. Staminate flowers: usually prematurely dropped in bud with abortive pollen; tepals 4, pinkish, outer 2 broadly ovate, 1.6–2.3 × 1.2–1.8 cm, abaxially pubescent, inner 2 elliptic, 1.1–1.4 cm × 5–7 mm. Pistillate flowers: tepals 5, pinkish, unequal, largest 1.7–2 × 1.4–1.8 cm, abaxially pubescent, smallest elliptic, ca. 1.2 × 7 mm; ovary pubescent, 2-loculed; placentae axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing falcate, ca. 2.5 cm; lateral wings smaller.

- Taiwan (Nantou).

This is a natural hybrid between *Begonia palmata* and *B. chitoensis*. Further studies to confirm its hybrid status and putative parents are in progress by C. I Peng and associates.

106. *Begonia ningmingensis* D. Fang et al., Bot. Stud. 47: 97. 2006.

宁明秋海棠 ning ming qiu hai tang

Herbs, rhizomatous. Rhizomes 2–10 cm or longer, 2.5–16 mm in diam.; internodes 3–17 mm. Leaves all basal; stipules triangular or nearly so, 4–16 × 2.5–10 mm; petiole 3–24 cm, 2–5 mm in diam., hirsute-villous; blade abaxially usually reddish, adaxially often with white spots along major veins, broadly ovate, suborbicular, or reniform, papery or thinly so, rugose, adaxially pilose-setose, basally 6–8-veined, tertiary veins reticulate and percurrent, base cordate, margin denticulate and ciliate. Inflorescences axillary, flowers 5–21 in a dichasial cyme; peduncle 4–21 cm, glabrous to sparsely villous; bracts ovate, oblong, or ligulate, margin denticulate and ciliate or ciliolate. Staminate flowers: pedicel 0.7–2 cm, glabrous; tepals 4, pinkish or white; androecium zygomorphic; stamens 20–50; filaments subequal; anthers submarginate at apex. Pistillate flowers: tepals 3, 2 outer, 1 inner, glabrous; ovary ellipsoid, 3-winged, 1-loculed with parietal placentation; wings unequal or subequal. Capsule nodding, ellipsoid, apex with persistent styles; lateral wings 2–3.5 mm tall; abaxial wing lunate or nearly so.

- Broad-leaved forests on limestone hills; 100–400 m. Guangxi.

- 1a. Leaf broadly ovate or suborbicular, apex acuminate, shortly acuminate, or acute; stipules serrulate at margin, ciliate or ciliolate; tepals of pistillate flowers caducous, if persistent not thickened when fruiting 106a. var. *ningmingensis*
- 1b. Leaf suborbicular or reniform, apex rounded or obtuse; stipules entire at margin, not ciliate; tepals persistent and thickened in fruit 106b. var. *bella*

106a. *Begonia ningmingensis* var. *ningmingensis*

宁明秋海棠(原变种) ning ming qiu hai tang (yuan bian zhong)

Stipules serrulate at margin, ciliate or ciliolate; leaf blade broadly ovate to suborbicular, 5.5–19 × 5–13 cm, apex acuminate, shortly acuminate, or acute. Staminate flowers: pe-

dicel 7–20 mm, glabrous; tepals 4, outer 2 pinkish or white, 1.2–2.5 × 1.2–1.9 cm, inner 2 tepals oblanceolate or narrowly obovate, 8–18 × 3–5 mm. Pistillate flowers: outer tepals 10–14 × 8–14 mm, caducous or nearly so; styles 3, fused in lower 1/4–1/2. Capsule 9–10 × 4–6 mm, stipe 6–20 mm. Fl. Aug–Dec, fr. Oct–Jan. $2n = 30^*$.

- Broad-leaved forests on limestone hills; 100–400 m. Guangxi (Chongzuo, Longzhou, Ningming).

106b. *Begonia ningmingensis* var. *bella* D. Fang et al., Bot. Stud. 47: 101. 2006.

丽叶秋海棠 li ye qiu hai tang

Stipules entire at margin, not ciliate; leaf blade suborbicular or reniform, 2.8–13.5 × 2.5–12.5 cm, apex rounded or obtuse. Inflorescences 1–3, flowers 3–15 in a dichasial cyme; staminate flowers 2–10, pistillate flowers 1–4; peduncle 4–15 cm, 1.5–2 mm in diam. Staminate flowers: pedicel 1–2 cm; tepals 4, outer 2 suborbicular to oblate, 8–13 × 8–13 mm, inner 2 tepals obovate or narrowly so, 7–8 × 2.5–3.5 mm; androecium zygomorphic; stamens 20–35; filaments subequal, 1–1.5 mm, nearly free or partly fused. Pistillate flowers: pedicel 5–12 mm, bracteole absent; tepals 3, persistent; outer 2 oblate or suborbicular, 6–10 × 8–10.5 mm; inner 1 obovate or narrowly so, 4–7 × 1.5–3.5 mm; ovary 4.5–7 mm, 2–5 mm in diam. Capsule 7–9 × 4–6 mm, apex with persistent tepals. $2n = 30^*$.

- Limestone hills; 200–300 m. Guangxi (Daxin).

107. *Begonia obliquifolia* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 21: 21. 1999 [*“obliquefolia”*].

斜叶秋海棠 xie ye qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, 4–6 mm in diam.; internodes 5–10 mm. Leaves all basal; stipules ovate-triangular; petiole 8–15 cm; blade adaxially greenish on major veins, brownish to dark green between veins, obliquely broadly ovate, 4.5–12 × 4–7 cm, papery, abaxially pubescent, more densely so on veins, adaxially tuberculate-based puberulous or nearly hispidulous, basally 5- or 6-veined, base cordate, margin crenulate or denticulate, apex acute or acuminate. Inflorescences axillary; peduncle 11–12 cm, glandular-pilose; flowers 2–10 in a dichasial cyme; bracts ovate-triangular or broadly ovate. Staminate flowers: pedicel 1.3–2 cm; tepals 4, outer 2 broadly ovate or suborbicular, abaxially pilosulose, inner 2 oblong or oblanceolate; androecium zygomorphic; stamens numerous; anthers obovoid-oblong, ca. 1 mm. Pistillate flowers: pedicel 1.3–2.3 cm; tepals 3, outer 2 abaxially pilosulose; ovary obovoid, glandular-pilose, 1-loculed; placentae parietal; styles 3. Capsule nodding, obovoid-ellipsoid, 10–15 × 4–6 mm, glandular pilose, unequally 3-winged; abaxial wing obliquely triangular. Fl. Jan, fr. Jan–Jun.

- Entrances to limestone caves; 1400–1500 m. SE Yunnan (Malipo).

In FRPS (52(1): 200. 1999) this species was misidentified as the Vietnamese endemic *Begonia bonii* Gagnepain.

108. *Begonia obsolescens* Irmscher, Notes Roy. Bot. Gard. Edinburgh 21: 37. 1951.

不显秋海棠 *bu xian qiu hai tang**Begonia fengii* T. C. Ku.

Herbs. Rhizomes elongate, 4–8 mm in diam. Leaves basal; stipules membranous, caducous; petiole 2.5–8 cm, sparsely villous; blade ovate or oblong-ovate, asymmetric, 1.8–8 × 1.5–6.2 cm, sparsely hispidulous and adaxially puberulous, venation palmate-pinnate, (5 or) 6-veined, base oblique, cordate, margin irregularly serrulate, apex acute to acuminate. Inflorescences 4–10 cm tall, villous; bracts caducous, ovate-lanceolate, 3–4 mm, membranous, apex obtuse. Staminate flowers: pedicel 1–1.8 cm; tepals 4, white to pink, villous, outer 2 broadly ovate or oblong, 7–8.5 × 6–8 mm, inner 2 oblong to elliptic, 5–6 × 2.5–3 mm; stamens numerous; filaments 1–1.8 mm, fused at base; anthers obovoid-oblong, 1–1.1 mm, apex emarginate. Pistillate flowers: tepals 5, white to pink, villous; ovary villous, 3-loculed; placentae axile, bilamellate. Capsule nodding, subequally 3-winged; wings triangular; placentae axile, bilamellate. Fl. Jun, fr. May.

• Forest margins, in scrubby vegetation; 500–1600 m. Guangxi, SE Yunnan.

109. *Begonia oreodoxa* Chun & F. Chun ex C. Y. Wu & T. C. Ku, Acta Phytotax. Sin. 33: 274. 1995.

山地秋海棠 *shan di qiu hai tang*

Herbs. Rhizomes elongate, 8–15 mm in diam. Leaves basal; stipules caducous; petiole 9–24 cm, densely reddish brown villous; blade ovate-suborbicular or broadly ovate, asymmetric, 11–33 × 13–25 cm, abaxially reddish brown hirsute, adaxially reddish brown hirsute on veins, venation palmate-pinnate, 7–9-veined, base oblique, deeply cordate or auriculate-imbricate, margin irregularly and remotely denticulate, apex acuminate to shortly caudate. Inflorescences 7–15 cm tall, densely reddish brown villous; bracts lanceolate, 7–8 mm, margin ciliate. Staminate flowers: pedicel 5–10 mm; tepals 4, pinkish to pink, outer 2 broadly ovate to orbicular, 1.2–1.3 × 1.3–1.5 cm, abaxially villous, inner 2 obovate, ca. 10 × 8 mm; stamens numerous; filaments free, 1–1.5 mm; anthers oblong, 0.8–0.7 mm. Pistillate flowers: tepals 4(or 3), pinkish to pink, outer 2 orbicular, 1–1.5 × 1.1–1.4 cm, abaxially villous or rarely glabrous, inner 2(or 1) obovate or elliptic, 10–11 × 4–6 mm; ovary villous or rarely glabrous, 2-loculed at base; placentae parietal toward apex of ovary, others axile, bilamellate; styles 2, free; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; adaxial wing obovate, ca. 1.5 cm, apex rounded; lateral wings smaller. Fl. Apr.

Forests or scrubby vegetation, shaded moist environments, on mountain slopes or by streams; 100–1200 m. SE Yunnan [Vietnam].

110. *Begonia ornithophylla* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 556. 1939.

鸟叶秋海棠 *niao ye qiu hai tang*

Herbs, rhizomatous. Rhizomes creeping, 5–12 mm in diam.; internodes 6–15 mm. Leaves all basal; stipules caducous, triangular to broadly ovate; petiole 6–15 cm; blade obliquely ovate to ovate-lanceolate, rarely broadly ovate, 8–18 × 4.5–14 cm, subleathery, basally 5- or 6-veined, tertiary veins weakly percurrent and reticulate, base shallowly cordate, margin coarse-

ly serrate or subentire, apex long acuminate. Inflorescences axillary; peduncle 10–18 cm; pedicel 9–18 mm, pubescent or sparsely sericeous-pilose; bracts ovate or oblong, 1.5–9 × 1–4.5 mm, margin indistinctly serrate, glandulose-ciliate, apex obtuse or acute; flowers pink. Staminate flower: tepals 4, outer 2 broadly ovate to orbicular, 1.2–1.9 × 1.1–1.7 cm, outside pilose to glabrous, base subrounded, apex rounded or obtuse, inner 2 oblong or obovate-oblong, 7–12.5 × 3–5 mm, base cuneate, apex obtuse; androecium zygomorphic; stamens 20–40; filaments 1.2–1.8 mm, slightly fused at base; anthers cuneate-obovoid, 1–1.5 mm, apex emarginate. Pistillate flower: tepals 3, outer 2 broadly ovate or suborbicular, 12.5–19 × 14–19 mm, inner 1 oblong, 7.5–12 × 3–4.5 mm; ovary oblong-ovoid, 1-loculed, placentae parietal; styles 3, 4.5–5 mm, fused in lower 1/3. Capsule with 3 subequal, triangular wings, all wings lunate. Fl. Jan–May, fr. Mar–Jun.

• On limestone rocks of forest understories; 100–600 m. Guangxi (Daxin, Longzhou, Ningming).

111. *Begonia palmata* D. Don, Prodr. Fl. Nepal. 223. 1825.

裂叶秋海棠 *lie ye qiu hai tang*

Herbs, 20–90 cm tall. Rhizomes elongate, to 2.1 cm in diam. Stem erect, brown villous, floccose-pubescent, or tomentose. Leaves basal and cauline; stipules caducous, narrowly ovate, to 2.8 × 1.8 cm, margin ciliate, apex cuspidate; petiole 5–40 mm, brown villous, floccose-pubescent, or tomentose; blade asymmetric, ovate or oblate-orbicular, 12–33 × 6–27 cm, adaxially hispidulous, sometimes tomentose, venation palmate, 5–10-veined, base oblique, slightly cordate to cordate, margin remotely and shallowly denticulate, shallowly to distinctly divided; lobes 3–7, apex acuminate to long acuminate. Inflorescences tomentose; bracts caducous, ovate, 0.7–1.5 cm × 4–8 mm, abaxially brown villous or tomentose, margin ciliate, apex acute. Staminate flowers: pedicel 1–2 cm; tepals 4, white to pink, outer 2 obovate to orbicular, 1–2.6 × 0.8–2.4 cm, abaxially villous or tomentose, inner 2 oblanceolate to narrowly obovate, 0.8–2.4 cm × 5–9 mm; stamens 100–200; filaments 0.8–2.4 mm; anthers narrowly obovoid, 1.9–2.3 mm. Pistillate flowers: pedicel 1–2 cm; tepals 5(–7), unequal, oblanceolate to orbicular, largest 0.8–2.4 × 0.8–2.2 cm, abaxially pubescent, smallest 0.8–2.1 cm × 4–9 mm; ovary brown tomentose or villous, 2-loculed; placentae axile, bilamellate; styles fused at base; stigmas 2-cleft, spiraled. Capsule nodding, obovoid, ca. 15 × 8 mm, unequally 3-winged; abaxial wing oblong or oblique-triangular, 1.1–3.2 cm; lateral wings much smaller. Fl. Jun–Aug, Nov–Dec, fr. Jul–Nov. $2n = 22^*$, 24^* .

Evergreen broad-leaved forests, scrubby vegetation, by streams or on slopes in valleys, on rocks in moist environments by streams; 100–3200 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan [Bangladesh, Bhutan, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

- 1a. Stem and petiole twisted brown woolly-tomentose or twisted-tomentose.
 - 2a. Blade adaxially hirsute 111a. var. *palmata*
 - 2b. Blade adaxially densely hispidulous, occasionally mixed hirsute 111b. var. *bowringiana*

- 1b. Stem and petiole erect- or floccose-pubescent or tomentose on local part.
- 3a. Abaxial surface of leaf blade, petiole, and stem when young hispidulous and sparsely hirsute, glabrescent; blade lobed, base subrounded, subequal 111c. var. *laevifolia*
- 3b. Abaxial surfaces of leaf blade, and stem erect- or floccose-pubescent, petiole sometimes tomentose, blade parted, asymmetric at base.
- 4a. Stem and both surfaces of leaf blade brown floccose-hirsute; petiole brown tomentose 111d. var. *difformis*
- 4b. Stem, petiole, and abaxial surface of leaf blade hirsute, adaxially hispidulous (hairs rounded at base) 111e. var. *crassisetulosa*

111a. *Begonia palmata* var. *palmata*

裂叶秋海棠(原变种) lie ye qiu hai tang (yuan bian zhong)

Begonia laciniata Roxburgh; *B. laciniata* var. *nepalensis* A. Candolle; *B. laciniata* var. *tuberculosa* C. B. Clarke.

Stem and petiole twisted brown woolly-tomentose; blade adaxially hirsute.

Scrubby vegetation, evergreen broad-leaved forests, by streams or on slopes in valleys; 1300–2100 m. ?Xizang (Médog), Yunnan (Gongshan) [Bangladesh, Bhutan, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

111b. *Begonia palmata* var. *bowringiana* (Champion ex Benth) Golding & Karegeannes, *Phytologia* 54: 494. 1984.

红孩儿 hong hai er

Begonia bowringiana Champion ex Benth, *J. Bot. Kew Gard. Misc.* 4: 120. 1852; *B. edulis* H. Léveillé var. *henryi* H. Léveillé; *B. ferruginea* Hayata (1911), not Linnaeus f. (1782); *B. kouytcheouensis* Guillaumin; *B. laciniata* subsp. *bowringiana* (Champion ex Benth) Irmscher; *B. laciniata* var. *bowringiana* (Champion ex Benth) A. Candolle; *B. laciniata* subsp. *principalis* Irmscher; *B. randaiensis* S. Sasaki; *Doratomyra bowringiana* (Champion ex Benth) Seemann.

Stem and petiole densely rusty twisted tomentose; blade variable in shape, often obliquely ovate, 5–16 × 3.5–13 cm, abaxially sparsely rusty twisted tomentose, more densely so on veins, adaxially densely hispidulous, sometimes sparsely hirsute, base obliquely cordate, lobed or divided to 1/2; lobes broadly triangular to narrowly triangular, margin toothed, apex acuminate. Flowers rose or white; tepals abaxially densely hairy. Fl. Jun, fr. Jul.

• Evergreen broad-leaved forests, on rocks in shaded moist environments by streams in valleys; 100–2500 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan.

111c. *Begonia palmata* var. *laevifolia* (Irmscher) Golding & Karegeannes, *Phytologia* 54: 495. 1984.

光叶红孩儿 guang ye hong hai er

Begonia laciniata subsp. *laevifolia* Irmscher, *Notes Roy. Bot. Gard. Edinburgh* 21: 43. 1951.

Stem, petiole, and blade abaxially hispidulous and sparsely hirsute, glabrescent; blade broadly ovate, ca. 14 × 15 cm, base rounded, slightly oblique, margin lobed or undulate; lobes broadly triangular, ca. 3 cm, base 3–4 cm wide, apex acute or obtuse. Flowers rose; tepals abaxially sparsely hairy. Fruit sparsely hairy. Fl. Nov–Dec.

• Yunnan (Hekou).

111d. *Begonia palmata* var. *difformis* (Irmscher) Golding & Karegeannes, *Phytologia* 54: 495. 1984.

变形红孩儿 bian xing hong hai er

Begonia laciniata subsp. *difformis* Irmscher, *Mitt. Inst. Allg. Bot. Hamburg* 10: 531. 1939.

Stem and both surfaces of leaf blade brown floccose-hirsute; petiole usually brown tomentose; blade broadly ovate, 14–18 cm, nearly as long as wide, base obliquely cordate, margin parted; lobes triangular, 3–6 × 1.5–2.5 cm, apex acute or shortly acuminate. Flowers rose; tepals ovate, abaxially pubescent. Fl. Jul–Aug, fr. Nov.

• Forests, scrubby vegetation, on rocks in moist environments by streams; 1800–2500 m. SW Yunnan.

111e. *Begonia palmata* var. *crassisetulosa* (Irmscher) Golding & Karegeannes, *Phytologia* 54: 495. 1984.

刺毛红孩儿 ci mao hong hai er

Begonia laciniata subsp. *crassisetulosa* Irmscher, *Mitt. Inst. Allg. Bot. Hamburg* 10: 532. 1939.

Stem, petiole, and blade abaxially hirsute; blade ovate, 9–12 × 6–8 cm, base obliquely cordate, margin remotely and minutely toothed; lobes subtriangular, 1–2 cm, adaxially hispidulous, hairs rounded at base. Flowers rose; tepals abaxially hirsute. Fl. Jun.

• Understories of evergreen broad-leaved forests, on rocks in moist environments by streams; 1500–3200 m. SW and W Yunnan.

112. *Begonia parvula* H. Léveillé & Vaniot, *Repert. Spec. Nov. Regni Veg.* 2: 113. 1906.

小叶秋海棠 xiao ye qiu hai tang

Herbs, deciduous. Tubers ca. 8 mm in diam. Leaves usually 2 or 3, basal; stipules ovate-lanceolate, membranous, caducous; petiole 4–6.5 cm, hairy; blade broadly ovate, nearly symmetric, 2–3.4(–4) × 2–4 cm, pilose or subglabrous, venation palmate, 5–7-veined, base cordate, margin crenate, apex obtuse. Inflorescences terminal, 4.5–7 cm tall, with 2 or 3 flowers; bracts obovate-oblong, margin serrate. Staminate flowers: pedicel ca. 2.8 cm; tepals 4, pinkish, outer 2 oblate-orbicular, ca. 8 × 11 mm, glabrous or abaxially hairy, inner 2 oblong, 8–9 × ca. 3.5 mm; stamens numerous; filaments 1–1.5 mm, free; anthers obovoid, ca. 1 mm, apex emarginate. Pistillate flowers: tepals 5, unequal, largest oblate to obovate, 8–9 × 7–10 mm, glabrous or

abaxially hairy, smallest oblong-obovate, 6–7 × 2.5–4 mm; ovary glabrous or hairy, 3-loculed; placentae axile, undivided; styles 3, fused to halfway; stigmas 2-cleft, U-shaped. Capsule pendulous, unequally 3-winged; abaxial wing triangular; lateral wings smaller. Fl. Sep. $2n = 28^*$.

- On rocks; 200–1300 m. Guizhou, Yunnan.

This species is similar to *Begonia henryi* but differs by its 4-tepaled staminate flowers and 5-tepaled pistillate flowers.

113. *Begonia paucilobata* C. Y. Wu, Acta Phytotax. Sin. 33: 275. 1995.

少裂秋海棠 shao lie qiu hai tang

Herbs, ca. 30 cm tall. Rhizomes elongate, ca. 1.5 cm in diam. Leaves basal; stipules caducous, membranous; petiole 11–14.5 cm, subglabrous; blade broadly pentagonous, slightly asymmetric, 7–11 × 6.5–9 cm, abaxially subglabrous or hairy, adaxially sparsely hispidulous, venation palmate, base slightly cordate to cordate, margin slightly and remotely serrulate, distinctly divided to 1/2 of leaf length; lobes usually 5, apex acute. Inflorescences glabrous or hairy; peduncle ca. 13 cm; bracts caducous, ovate, 1.5–2 × ca. 1.5 cm, glabrous, apex acute. Staminate flowers: pedicel ca. 3.2 cm; tepals 4, pink, outer 2 broadly ovate, 3–4 × 3–4 cm, glabrous or abaxially hairy, inner 2 elliptic, ca. 2 × 1.3 cm; stamens numerous, fused at base; filaments ca. 2.5 mm; anthers obovoid-oblong, ca. 1 mm. Pistillate flowers: pedicel ca. 7 mm; tepals 5, ovate to orbicular, glabrous or abaxially hairy, 0.8–1.5 × 0.8–1.5 cm; ovary glabrous or hairy, 2-loculed; placentae axile, bilamellate; styles 2; stigmas 2-cleft, spiraled. Capsule nodding, ellipsoid, ca. 1.5 cm, unequally 3-winged; abaxial wing ligulate, 0.8–1.5 cm, apex rounded; lateral wings smaller. Fl. Jul–Aug, fr. Sep–Oct.

- Forest understories; 1700–1800 m. Yunnan.

This species is similar to *Begonia laminariae* but differs by the 5-lobed blade, which is divided to ca. 1/2 of the leaf length.

- 1a. Tepals and ovary glabrous 113a. var. *paucilobata*
1b. Tepals and ovary hairy 113b. var. *maguanensis*

113a. *Begonia paucilobata* var. *paucilobata*

少裂秋海棠(原变种) shao lie qiu hai tang (yuan bian zhong)

Tepals and ovary glabrous.

- Forest understories; ca. 1700 m. Yunnan (Suijiang).

113b. *Begonia paucilobata* var. *maguanensis* (S. H. Huang & Y. M. Shui) T. C. Ku, Fl. Reipubl. Popularis Sin. 52(1): 261. 1999.

马关秋海棠 ma guan qiu hai tang

Begonia maguanensis S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 338. 1994.

Tepals abaxially hairy; ovary hairy.

- Forest understories; ca. 1800 m. Yunnan (Maguan).

114. *Begonia pedatifida* H. Lévillé, Repert. Spec. Nov. Regni Veg. 7: 21. 1909.

掌裂秋海棠 zhang lie qiu hai tang

Begonia pedatifida var. *kewensis* H. Lévillé.

Herbs. Rhizomes elongate, to 2.8 cm in diam. Leaves all basal or sometimes with 1 cauline leaf; stipules caducous, ovate, ca. 10 × 8 mm, membranous, apex acute; petiole 10–55 cm, densely or sparsely villous; blade oblate-orbicular to broadly ovate, 10–40 cm, abaxially hispidulous, adaxially sparsely hispidulous, venation palmate, 6- or 7-veined, base cordate, margin remotely serrulate, distinctly divided to 2/3 of leaf length; lobes (4 or)5 or 6, apex acuminate; lobules present. Inflorescences 5–16 cm tall, sparsely to densely villous; bracts caducous. Staminate flowers: pedicel 1–3.3 cm; tepals 4, white to pinkish, outer 2 broadly ovate, 1.7–2.5 × 1.2–1.8 cm, abaxially pilose, inner 2 oblong, 14–18 × 7–10 mm; stamens 80–200; filaments 1.2–4.9 mm; anthers obovoid-oblong, 1–2.5 mm, apex emarginate or obtuse. Pistillate flowers: pedicel 1–2.5 cm; tepals 5, white to pink, unequal, largest broadly ovate, 1.8–2 × ca. 1 cm, glabrous or abaxially pilose, smallest oblong, 0.9–1.6 cm × 5–8 mm; ovary glabrous or pilose, 2-loculed; placentae axile, bilamellate, styles 2, 4.2–5.5 mm, free; stigmas 2-cleft, spiraled. Capsule nodding, obovoid, ca. 1.5 × 1 cm, unequally 3-winged; abaxial wing triangular or falcate, 1.2–2.4 cm; lateral wings triangular, 4–10 mm. Fl. Jan–Jul, fr. Oct.

- Broad-leaved forests, shaded moist environments; 300–1700 m. Guizhou, Hubei, Hunan, Sichuan.

115. *Begonia peii* C. Y. Wu, Acta Phytotax. Sin. 33: 252. 1995.

小花秋海棠 xiao hua qiu hai tang

Herbs, tuberous, probably deciduous, 7–11 cm tall. Stem erect, glabrous. Leaves cauline; stipules caducous; petiole 1–1.8 cm, glabrous; blade broadly ovate or suborbicular, asymmetric, 1–2.9 × 0.9–3.2 cm, glabrous, venation palmate, 5-veined, base cordate, margin shallowly crenate, apex rounded or acute. Inflorescences terminal and axillary; bracts caducous, broadly ovate, ca. 6 × 6 mm, herbaceous, glabrous, margin dentate. Staminate flowers: pedicel 5–10 mm; tepals 4, outer 2 suborbicular, 3.5–4 × 3.5–4 mm; stamens 7–9; filaments fused to 2/3; anthers obovoid, ca. 1 mm. Pistillate flowers: tepals 4, outer 2 suborbicular, 3.5–4 × 3.5–4 mm, inner 2 oblong, ca. 3 × 1.2 mm; ovary oblong, glabrous, 2-loculed; placentae axile, bilamellate; styles 2, entirely fused; stigmas 2-cleft, spiraled. Capsule pendulous, oblong, unequally 3-winged; abaxial wing oblate-triangular, 2–3 mm; lateral wings smaller. Fl. Sep.

- Limestone rocks; ca. 1000 m. Yunnan (Yiwu).

116. *Begonia peltatifolia* H. L. Li, J. Arnold Arbor. 25: 209. 1944.

盾叶秋海棠 dun ye qiu hai tang

Herbs. Rhizomes elongate, to 1.8 cm in diam. Leaves basal; stipules caducous, ca. 14 × 9 mm; petiole 7–18 cm, glabrous; blade succulent, peltate, broadly ovate to orbicular, nearly symmetric, 10–14 × 7.5–10 cm, subglabrous to glabrous, venation palmate, 10–12-veined, base slightly oblique, rounded, margin indistinctly crenulate, apex abruptly caudate. Inflorescences 20–39 cm tall, glabrous; bracts caducous, 5.3–9 × 3.9–

8.9 mm. Staminate flowers: pedicel 7–17 mm; tepals 4, pinkish, outer 2 suborbicular or obovate, 1.2–1.8 × 1.7–1.9 cm, glabrous, inner 2 narrowly oblong, 6–10 × 2–5 mm; stamens 28–35; filaments 1.5–2.2 mm, free; anthers obovoid-oblong, 0.9–1.1 mm, apex obtuse. Pistillate flowers: pedicel 14–18 mm; tepals 3, pinkish, outer 2 suborbicular, 1.2–1.5 × 1.7–1.8 cm, glabrous, inner 1 oblong, ca. 10 × 5–6 mm; ovary obovoid-oblong, ca. 9 × 4–5 mm, glabrous, 3-loculed; placentae axile, bilamellate; styles 3, 4–4.9 mm, free; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing triangular, 1–1.6 × 0.8–1 cm; lateral wings smaller. Fl. Jun–Jul, fr. Jul.

• Broad-leaved forests, on limestone rocks in semishaded but dry environments, near mountain summits; ca. 900 m. Hainan (Baisha, Changjiang).

117. *Begonia picta* Smith, Exot. Bot. 2: 81. 1805.

樟木秋海棠 zhang mu qiu hai tang

Begonia echinata Royle.

Herbs, deciduous. Tubers globose, 5–8 mm in diam. Stem absent or very short. Leaves 1 or 2, basal or cauline; stipules caducous, ovate-lanceolate, abaxially hairy; petiole 5–8(–15) cm, pubescent on upper part; blade ovate-cordate, slightly asymmetric, 5–8 × 4–7 cm, abaxially hirsute, adaxially sparsely hirsute, venation palmate, 7-veined, base slightly oblique, cordate to deeply cordate, margin bidentate, apex acuminate. Inflorescences terminal, 6–15(–21) cm tall, pubescent; bracts ovate-lanceolate, abaxially pilose. Staminate flowers: pedicel 5–10 mm; tepals 4, pink, outer 2 suborbicular, ca. 9 × 7 mm, abaxially villous, inner 2 elliptic, 5–6 × ca. 2.5 mm; stamens numerous; filaments 0.8–1 mm, fused at base; anthers oblong, ca. 1 mm, apex emarginate. Pistillate flowers: tepals 5, pink, largest broadly obovate, 6–7 × 4–5 mm, smallest elliptic, ca. 3.2 × 1.3 mm; ovary villous, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, spiraled. Capsule pendulous, obovoid, ca. 6 mm, unequally 3-winged; abaxial wing lanceolate, ca. 1.5 × 0.4 cm; lateral wings smaller. Fl. Aug–Sep, fr. Sep.

Forest margins, on rocks in shaded moist environments by streams and slopes; 2200–2900 m. Xizang (Nyalam) [N India, Myanmar, Nepal].

This species is similar to *Begonia parvula* but differs by its bilamellate placentae.

118. *Begonia picturata* Yan Liu et al., Bot. Bull. Acad. Sin. 46: 367. 2005.

一口血秋海棠 yi kou xie qiu hai tang

Herbs, rhizomatous. Rhizomes 5–15 × 0.6–1.2 cm; internodes 0.8–3 cm. Leaves all basal; stipules ovate-triangular to lanceolate-triangular, 10–23 × 6–10 mm; petiole 7–17 cm, 3–6 mm thick; blade with a wide whitish ring-shaped belt, or with digitate dark brown bands along main veins and at leaf margin, ovate to broadly ovate, 7–20 × 5.5–14 cm, thickly papery, ± rugose, abaxially shortly villous, particularly so on veins, adaxially villous-setose or tomentose-setose, basally 6- or 7-veined, all veins on abaxial surface prominently raised, base obliquely deeply cordate. Inflorescences axillary, flowers 4–17 in a dichasial cyme; peduncle 10–16 cm, hirsute-villous; pedicel hispid-

villous; bracts ovate, oblong, or orbicular. Staminate flowers: tepals 4, outer 2 suborbicular to oblong; inner 2 obovate, oblong, or oblanceolate; androecium zygomorphic; stamens 20–50; anthers oblong-obovoid, apex subemarginate, yellow with red margin along anther sacs. Pistillate flowers: tepals 3, usually caducous; outer 2 suborbicular to broadly ovate; inner 1 obovate; ovary 7–11 × 5–7 mm, red villous-setose or hispid-setose, 3-winged, 1-loculed with parietal placentation; wings unequal, abaxial wing lunate. Capsule nodding, 10–15 × 6–8 mm; abaxial wing 6–9 mm tall. Fl. Feb–May, fr. Mar–Jun. $2n = 30^*$.

• Shaded rocky limestone slopes, in caves; 700–800 m. Guangxi (Jingxi).

119. *Begonia pinglinensis* C. I Peng, Bot. Bull. Acad. Sin. 46: 261. 2005.

坪林秋海棠 ping lin qiu hai tang

Herbs. Rhizomes elongate, to 1 cm in diam. Stems 35–50 cm. Leaves basal and cauline; stipules caducous, narrowly ovate to ovate, to 9.7 × 3.6 mm, glabrous, margin entire, apex acuminate; petiole often reddish, to 16(–20) cm, hispid or villosulous; blade narrowly ovate to ovate, asymmetric, 7–16(–25) × 5–9(–14) cm, pilose to pilose-sericeous, venation palmate, 7–10-veined, base oblique, shallowly cordate, margin irregularly serrulate to denticulate, apex acuminate to cuspidate. Inflorescences to 25 cm, hispid; peduncle to 15 cm; bracts caducous, narrowly ovate, to 7.5 × 3.5 mm, papery, glabrous, margin entire, apex acuminate. Staminate flowers: tepals 4, white to pinkish, outer 2 broadly ovate to ovate, 0.7–2 × 0.6–1.7 cm, abaxially hairy, inner 2 oblanceolate to narrowly obovate, 0.8–1.7 cm × 4–9 mm; stamens 46–81; filaments free, 0.7–1.6 mm; anthers narrowly oblong to oblanceolate, 0.8–1.4 mm. Pistillate flowers: tepal 5, unequal to subequal, narrowly obovate to broadly obovate, largest 1–1.9 × 0.9–1.7 cm, abaxially hairy, smallest 6–19 × 5–14 mm; ovary hairy, 2-loculed; placentae axile, bilamellate; styles 2, 4–5(–5.7) mm, fused at base, stigmas 2-cleft, spiraled. Capsules nodding, trigonous, unequally 3-winged; abaxial wing triangular to ligulate, 1.3–2.8 × 0.9–1.9 cm; lateral wings smaller. $2n = 38^*$.

• Forests; 200–300 m. N Taiwan (Taibei).

This species is similar to *Begonia chitoensis* but differs by its densely hairy blade and hairy tepals and ovary.

120. *Begonia platycarpa* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 368. 2005.

扁果秋海棠 bian guo qiu hai tang

Herbs, rhizomatous. Rhizome 4–10 cm, 2–3 mm in diam., sparsely hirsute, hairs 2–3 mm; internodes 5–9 mm. Leaves all basal; stipules mostly persistent, reflexed, triangular, 6–8 × 3–4 mm, adaxially densely pilose; petiole 5–10 cm, hirsute (hairs 3–5 mm); blade very broadly ovate, 6–8 × 4–5.5 cm, papery, abaxially sparsely pilose (hairs 3–4 mm) on veins and glabrous on other parts, adaxially densely pilose (hairs ca. 3 mm), basally 6-veined, base obliquely deeply cordate, margin serrulate and with cilia 3–4 mm, apex obtuse. Inflorescences 12–15 flowers in a dichasial cyme; peduncle 5–8 cm, sparsely pilose (hairs ca.

3 mm); bracts obovate or ovate, 4–7 × 2–3.5 mm, abaxially sparsely pilose, margin ciliate, apex rounded or acute. Staminate flowers: tepals 4, outer 2 pink, suborbicular, 1–1.5 cm in diam., apex with red stripes, outside sparsely pilose, inner 2 white or pinkish, obovate, 1.2–1.6 × 4–6 mm; stamens numerous; filaments free, 1–1.1 mm; anthers yellow, obovoid, 1.2–1.3 × 0.5–0.7 mm, apex submarginate. Pistillate flowers: tepals (2 or 3)(or 4), pink, outer 2 orbicular, 1–1.3 cm in diam., apex with red stripes, outside sparsely pilose (hairs ca. 2 mm), inner pinkish, obovate, 0.8–1.1 × 3–5 mm; ovary broadly ovoid-ellipsoid, 3-winged, sparsely pilose (hairs ca. 2 mm), 1-loculed with parietal placentation; styles 3, ca. 2 mm, base slightly fused, stigmas spirally twisted. Capsule nodding, orbicular, compressed, 7–8 mm in diam., glabrescent, styles persistent; wings 3, equal, lunate, 1.5–2.2 mm. Fl. Mar–Jun.

- At foot of limestone hills; ca. 900 m. Yunnan (Guangnan).

121. *Begonia polytricha* C. Y. Wu, Acta Phytotax. Sin. 33: 275. 1995.

多毛秋海棠 duo mao qiu hai tang

Herbs, 20–30 cm tall. Rhizomes elongate, 6–8 mm in diam. Stems densely brown hirsute. Leaves basal and cauline; stipules caducous, ovate, membranous, margin ciliate, apex acuminate; petiole (3–)4–12 cm, densely brown hirsute; blade ovate, asymmetric, 6–7 × 4–5 cm, abaxially sparsely hispidulous, adaxially long hirsute, base oblique, cordate, margin dentate, shallowly lobed, divided to 1/3 of leaf length, apex shortly caudate. Inflorescences densely brown hirsute; peduncle 1–3 cm; bracts triangular-lanceolate, 4–5 × ca. 3.5 mm, membranous, margin ciliate, apex acuminate. Staminate flowers: pedicel ca. 1 cm; tepals 4, outer 2 oblong-ovate, 9–13 × 7–10 mm, abaxially brown hirsute, inner 2 oblong, ca. 6 × 1.5–2 mm; stamens numerous; filaments free, ca. 1.5 mm; anthers oblong, ca. 0.8 mm, apex obtuse. Pistillate flowers: pedicel ca. 1 cm; tepals 5, orbicular to narrowly oblong, largest ca. 10 × 9 mm, abaxially hirsute; ovary densely brown hirsute. Capsule unknown. Fl. Oct.

- Broad-leaved forests, shaded moist environments on slopes; 1800–2200 m. Yunnan (Lüchun, Yuanyang).

122. *Begonia porteri* H. Léveillé & Vaniot, Repert. Spec. Nov. Regni Veg. 9: 20. 1910.

罗甸秋海棠 luo dian qiu hai tang

Begonia bellii H. Léveillé; *B. yishanensis* T. C. Ku.

Herbs, rhizomatous. Rhizomes creeping, 5–11 mm in diam.; internodes 0.8–1.7 cm. Leaves all basal; stipules ovate to triangular-ovate; petiole to 3.5–15 cm; blade abaxially pale green or reddish, adaxially green or brown-green, obliquely ovate, broadly ovate, or suborbicular, 3–13 × 2–11 cm, papery, abaxially pilose-tomentose to sparsely villous, more densely so on veins, adaxially pilose-tomentose, basally 5- or 6-veined, base cordate, margin irregularly serrulate, apex obtuse or acute to acuminate. Inflorescences axillary, flowers 3–17 in a dichasial cyme; peduncle 7–20 cm, glabrous, rarely sparsely pilose; bracts caducous, oblong to ovate. Staminate flowers: tepals 4, outer 2 broadly elliptic, broadly ovate, or orbicular, 1–1.4 × 1–

1.4 cm, inner 2 white, broadly oblanceolate, 8–13 × 5–6 mm; androecium zygomorphic; stamens 16–25; filaments 1.4–1.6 mm; anthers 2-celled, obovoid-oblong. Pistillate flowers: tepals 3, outer 2 broadly ovate or obovate, 7–12 × 6–13 mm, apex rounded, inner 1 obovate to oblanceolate, 5–10 × 3–5 mm, apex obtuse; ovary oblong, 5–10 × 3–5 mm, placentae parietal; styles 3, 2.5–3.5 mm, widened upward; stigmas reniform or shallowly C-form, not spirally twisted, papillose all around. Capsule oblong, 8–15 × 4–7 mm, with 3 unequal wings, abaxial wing lunate to subtriangular, 3–7 × 8–15 mm; lateral wings smaller, 1–4 mm. Fl. Jun–Nov, fr. Jul–Dec.

- Semishaded, slightly moist limestone surfaces and caves; 100–400 m. Guangxi (Luo Cheng, Pingnan, Yishan), Guizhou (Luodian).

123. *Begonia pseudodaxinensis* S. M. Ku et al., Bot. Stud. 47: 211. 2006.

假大新秋海棠 jia da xin qiu hai tang

Herbs, rhizomatous. Rhizomes stout, 6–30 mm in diam.; internodes 6–12 mm. Leaves all basal; stipules ovate-triangular, apex obtuse or emarginate; petiole terete, 15–35 × 4.5–7 mm; blade green throughout, broadly ovate or suborbicular, 16–38 × 12–26 cm, slightly rugose, basally 6–8-veined, base deeply cordate, margin denticulate-ciliolate, apex shortly acuminate or acute. Inflorescences axillary, flowers 25–57 in a dichasial cyme; peduncle 14–28 cm; bracts broadly ovate to orbicular, 2–5.5 × 2–5 mm, margin denticulate and ciliate. Staminate flowers: pedicel 1–3 cm, pilose; tepals 4, outer 2 suborbicular; inner 2 oblong or obovate; androecium zygomorphic; stamens 28–40; anthers oblong-obovoid, apex submarginate. Pistillate flowers: pendent, pedicel 1.3–1.9 cm; tepals 3, outer 2 suborbicular or obovate; ovary ellipsoid or ovoid-ellipsoid, 3-winged, 1-loculed with parietal placentation; styles 3, slightly spiraled. Capsule nodding, 13–14 × 5–6 mm. Fl. Dec–Mar, fr. 2n = 30*.

- Limestone hills; ca. 400 m. Guangxi (Daxin).

124. *Begonia pseudodryadis* C. Y. Wu, Acta Phytotax. Sin. 33: 276. 1995.

假厚叶秋海棠 jia hou ye qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, 1–1.6 cm in diam.; internodes short. Leaves all basal; stipules ovate; petiole 5–16 cm, glabrous; blade abaxially reddish brown, adaxially with many pale, oval spots of various sizes between veins and usually with a broad pale band along midvein against dark green background, strongly obliquely ovate, 5–15 × 4–8 cm, subleathery, both surfaces glabrous, basally 6- or 7-veined, base deeply cordate, margin subentire, sometimes shallowly repand or angularly lobed, apex acuminate to caudate-acuminate. Inflorescences with 4–15 flowers in a dichasial cyme; peduncle 6–20 cm; bracts oblong or elliptic. Staminate flower: pedicel 1.2–1.6 cm; tepals 4, pink, glabrous, outer 2 ovate to broadly ovate, inner 2 lanceolate; stamens 30–40, anthers obovoid, apex subtruncate. Pistillate flower: pedicel 1.5–2.5 cm; tepals 5, pink, outer ones rhomboid to ovate-triangular, inner ones gradually diminishing, innermost one lanceolate; ovary obovoid-oblong, glabrous, unequally 3-winged, placentae parietal; styles 3. Capsule ellipsoid, glabrous, with 3 unequal wings, abaxial wing obliquely broadly ligulate, lunate, or subrectangular. Fl. May–

Sep, fr. July–Nov.

• Mossy limestone rocks in valleys; 800–1500 m. Yunnan (Hekou, Maguan, Pingbian).

125. *Begonia pseudoleprosa* C. I Peng et al., Bot. Stud. 47: 214. 2006.

假癩叶秋海棠 jia lai ye qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, 4–7.5 mm in diam.; internodes 3.5–5 mm. Leaves all basal; stipules triangular or narrowly triangular; petiole 5–20 cm; blade all green, broadly ovate to suborbicular, 5–11 × 4–8.5 cm, subleathery, nearly flat, adaxially subglabrous, basally 5- or 6-veined, base shallowly cordate, apex shortly acuminate or acute. Inflorescences a dichasial cyme with 5–15 flowers; staminate flowers 3–11, pistillate flowers 1–4; bracts lanceolate, ligulate, or oblong. Staminate flowers: pedicel 8–30 mm, glabrous; tepals 4, outer 2 white or pinkish, suborbicular; inner 2 tepals white, oblong; androecium zygomorphic, subglobose; stamens 15–40, golf-club-shaped; anthers oblong-obovoid, apex subemarginate. Pistillate flowers: pedicel 6.5–13 mm, bracteole absent; tepals 3, outer 2 tepals white or pinkish, suborbicular; inner tepals white, oblong or narrowly obovate; ovary obovoid-ellipsoid, 3-winged, 1-loculed with parietal placentation; styles 3; Capsule nodding, 10–12 × 4.5–5.5 mm. Fl. Nov–Dec.

• Limestone hills. Guangxi (Daxin).

126. *Begonia psilophylla* Irmischer, Notes Roy. Bot. Gard. Edinburgh 21: 39. 1951.

光滑秋海棠 guang hua qiu hai tang

Herbs, 29–42 cm tall. Rhizomes to 2.5 cm in diam. Stems erect, seen only at anthesis, glabrous. Leaves basal and cauline; stipules caducous; petiole to 30 cm, glabrous; blade ovate-cordate, nearly symmetric, 8–19 × 6–13 cm, glabrous, base slightly oblique, rounded or slightly cordate, margin remotely and minutely serrulate, apex caudate. Inflorescences glabrous; peduncle 8–17 cm; bracts elliptic to ovate-oblong, 7–9 × 4–5 mm, glabrous. Staminate flowers: pedicel 1.2–1.4 cm tepals 4, pink to dark red-brown, outer 2 elliptic, 10–13 × 7–8 mm, inner 2 obovate-oblong, 8–12 × 3–7 mm; stamens 70–90; filaments 0.7–2.1 mm; anthers oblong, 0.7–2.9 mm. Pistillate flowers: pedicel 0.9–1.1 cm; tepals 5, subequal, oval, largest 6–10 × 4–7 mm, smallest 6–9 × 4–5 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, 2.6–4.2 mm, fused to halfway; stigmas 2-cleft, spiraled. Capsule nodding, ellipsoid, 8–10 mm, unequally 3-winged; abaxial wing falcate, 12–15 × ca. 9 mm, apex rounded; lateral wings smaller. Fl. Feb. $2n = 23^*$.

• Forests, on limestone rocks in shaded moist environments; 100–700 m. Yunnan (Hekou).

127. *Begonia pulvinifera* C. I Peng & Yan Liu, Bot. Stud. 47: 319. 2006.

肿柄秋海棠 zhong bing qiu hai tang

Herbs. Rhizomes elongate, creeping, to 2 cm in diam. Leaves arising from rhizome; stipules triangular, 2.8–3 × 1.7–1.9 cm, glabrous, margin entire, apex acuminate or cuspidate, persistent; petiole greenish, to 24 cm, glabrous, base reddish

brown, swollen; blade green, peltate, ovate, slightly asymmetric, 14–21 × 8–14 cm, glabrous, venation palmate, base rounded, margin entire or nearly so, apex acuminate, shortly caudate. Inflorescences 17–45 cm, glabrous; peduncle 34–37 cm; bracts reddish brown, narrowly ovate, 2–2.5 × 0.9–1.2 cm, glabrous, margin entire, apex acute to acuminate. Tepals pinkish, glabrous. Staminate flowers: pedicel 2.2–3.5(–4.8) cm; tepals 4, glabrous, outer 2 broadly ovate, 2.3–2.8 × 2.2–2.5 cm, inner 2 oblanceolate, 16–18 × 5–8 mm, apex obtuse; stamens more than 100; filaments nearly free, 3–5 mm; anthers obovoid, ca. 1 mm, apex truncate or subemarginate. Pistillate flowers: pedicel 1.3–1.5 cm; tepals 3, glabrous, outer 2 depressed-ovate, 1.8–2 × 2.4–2.6 cm, inner 1 oblanceolate, 1.2–1.4 × 4–5 mm; ovary glabrous, unequally 3-winged, 3-loculed; placentae axile, bilamellate; styles 3, 4–4.5 mm, fused at base; stigmas 2-cleft, in a spiraled band. Infructescences 17–45 cm; capsules nodding, ca. 3.1 cm, unequally 3-winged; abaxial wing lunate, ca. 5 mm; lateral wings smaller, 2–3.5 mm.

• Forests, on limestone rocks; ca. 300 m. Guangxi (Jingxi).

This species is known only from the type gathering. It resembles *Begonia cavaleriei* but is distinguishable by having stipules triangular with the apex acuminate or cuspidate, the petiole pulvinate, and bracts ovate with the apex acute or acuminate. It is also similar to *B. wangii* but differs by having the petiole with a reddish brown swollen base, the abaxial surface of the leaf blade pale green, tepals obtuse, those of staminate flowers 4, those of pistillate flowers 3, and the ovary with axile placentation throughout.

128. *Begonia purpureofolia* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 340. 1994.

紫叶秋海棠 zi ye qiu hai tang

Herbs. Rhizomes elongate, to 1.2 cm in diam. Stems to 100 cm, to 1.5 cm in diam., densely hairy. Leaves basal and cauline; stipules caducous, ovate-lanceolate, 8–19 × 5–9 mm, abaxially densely pilose, margin ciliate, apex acute; petiole 4–24 cm, hairy; blade purple, ovate-triangular, asymmetric, 6.5–23 × 4.5–18 cm, densely hairy, venation palmate, base oblique, cordate, margin irregularly serrulate and ciliate, shallowly lobed, apex acute to acuminate. Inflorescences hairy; peduncle 8–14 cm; bracts caducous, ovate-lanceolate, 14–15 × 8–9 mm, densely villous, margin denticulate, apex acute. Staminate flowers: pedicel 1.7–2.6 cm; tepals 4, pink, outer 2 ovate, ca. 1.8 × 1.2–1.3 cm, abaxially villous, inner 2 oblong, 1.1–1.2 × ca. 0.7 cm; stamens ca. 150; filaments fused to halfway, 1.6–3.9 mm; anthers obovoid-oblong, 0.9–1.4 mm. Pistillate flowers: pedicel 1.3–1.9 cm; ovary densely villous, 2-loculed; placentae axile, bilamellate; tepals 5, pink, broadly ovate to oblong, unequal, largest 1.5–1.6 × 1–1.1 cm, abaxially pilose, smallest 1.5–1.6 × 0.8–1.1 cm; styles 2, fused to halfway, 3.9–5.1 mm; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing ligulate, ca. 1.6 × 1.2 cm; lateral wings to 1.2 cm.

• Forest understories; 900–1700 m. Yunnan (Jinping, Pingbian).

This species is similar to *Begonia villifolia* but differs by its rhizomatous habit and the ligulate abaxial wing of the capsule.

129. *Begonia ravenii* C. I Peng & Y. K. Chen, Bot. Bull. Acad. Sin. 29: 217. 1988.

岩生秋海棠 yan sheng qiu hai tang

Herbs, deciduous. Tubers subglobose, to 2.2 cm in diam.; stolons threadlike, to 35 cm, glabrous. Stems often reddish, to 50 cm tall. Leaves basal and cauline; stipules caducous, ovate, 5–7 mm, margin serrulate; petiole often reddish, to 25 cm; blade ovate, asymmetric, to 27 × 18 cm, abaxially glabrous, adaxially sparsely scabrous, venation palmate, 6- or 7-veined, base oblique, cordate, margin irregularly serrulate, shallowly lobed, apex acute or shortly acuminate. Inflorescences glabrous; bracts caducous, narrowly ovate or elliptic, 5–12 × 4–7 mm, thinly papery, glabrous, margin serrate, apex acute. Staminate flowers: pedicel 0.7–2.5 cm; tepals 2, pinkish to pale purple, cordate or oblate, 0.9–2.2 × 1.4–2.1 cm, glabrous; stamens 20–49; filaments 1.6–3 mm; anthers obovoid, 1.2–1.8 mm. Pistillate flowers: pedicel 1–3.5 cm; tepals 2, rarely 3, pinkish to pale purple, suborbicular, 1.2–1.5 cm, base oblique, slightly cordate; ovary obovoid, glabrous, 3-loculed; placentae axile, bilamellate; styles 3, fused at base, 1.5–4.2 mm; stigmas 2-cleft, spiraled. Capsule pendulous, obovoid-globose, glabrous, subequally 3-winged. Fl. Oct, fr. Nov. $2n = 36^*$.

- On moist, semishaded rocky slopes; 300–1000 m. W Taiwan.

This species is similar to *Begonia grandis* but differs by the presence of stolons and the 2-tepaled staminate and pistillate flowers.

130. *Begonia reflexsquamosa* C. Y. Wu, Acta Phytotax. Sin. 33: 278. 1995.

倒鳞秋海棠 dao lin qiu hai tang

Herbs, 30–60 cm tall. Rhizomes 1–1.3 cm in diam. Stems 5–6 mm in diam., with dense, reflexed red scalelike hairs. Leaves basal and cauline; stipules caducous; petiole to 24 cm, ca. 5 mm in diam., reflexed red-brown scalelike hairy; blade oblate-orbicular, slightly asymmetric, to 21 × 31 cm, abaxially brown hairy, adaxially sparsely or densely hairy, venation palmate, 5–7-veined, base slightly cordate, margin coarsely serrulate, distinctly lobed, divided to 2/3 of leaf length; lobes 5 or 6, apex acuminate; lobules present. Staminate flowers: tepals 4, white. Pistillate flowers: tepals 5, white. Infructescence red-brown, 13–17 cm tall, brown scalelike hairy. Capsule nodding, oblong, 1.2–2.5 cm, 2-loculed, placentae axile, bilamellate, subequally 3-winged. Fl. Jul, fr. Aug.

- Shaded moist mountain slopes; 700–1800 m. Yunnan (Lüchun, Pingbian).

This species is similar to *Begonia miranda* but differs by the presence of cauline leaves and the 2-loculed ovary.

131. *Begonia repenticaulis* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 547. 1939.

匍茎秋海棠 pu jing qiu hai tang

Herbs. Rhizomes ca. 4.5 mm in diam.; internodes 1.5–5 cm. Leaves basal; stipules caducous, ovate-oblong, 12–18 × 4–6 mm, abaxially rusty villous, apex acuminate; petiole 9–22 cm, shortly pilose; blade abaxially pale green, adaxially dark green, broadly ovate or suborbicular, asymmetric, 12–16 × 10–14 cm, abaxially rusty hispidulous, adaxially rusty brown hispidulous, venation palmate, 5–7-veined, base slightly oblique, cordate,

margin serrulate, shallowly lobed; lobes triangular, apex acuminate. Inflorescences 28–31 cm tall, hispidulous. Flowers not seen. Capsule nodding, oblong, 8–12 × 4–5 mm, 2-loculed, placentae axile, bilamellate, unequally 3-winged; abaxial wing oblong or narrowly ligulate, 11–13 × ca. 5 mm; lateral wings triangular, 6–8 mm. Fr. Aug.

- Yunnan (between Tengchong and Dali).

This species is similar to *Begonia palmata* but differs by lacking a cauline leaf.

132. *Begonia retinervia* D. Fang et al., Bot. Stud. 47: 106. 2006.

突脉秋海棠 tu mai qiu hai tang

Herbs, rhizomatous. Rhizome creeping, 3–16 mm in diam. Leaves all basal; stipules triangular; petiole 3–13 mm; blade with white spots along major veins, suborbicular, unlobed or rarely very shallowly angular lobed, 4–25 × 3.5–22 cm, thickly papery, rugose, basally 6–8-veined, base cordate, margin denticulate and ciliolate, apex obtuse to shortly acuminate. Inflorescences with 5–40 flowers in a dichasial cyme; peduncle 8–21 cm; bracts recurved, broadly elliptic, oblong, or obovate. Staminate flowers: pedicel 6–25 mm; tepals 4, outer 2 suborbicular, oblate, or obovate; inner 2 oblanceolate, obovate, or narrowly obovate; androecium zygomorphic; stamens 15–35; anthers oblong-obovoid or narrowly so, apex emarginate. Pistillate flowers: tepals 3, outer 2 tepals suborbicular or oblate, inner tepal pinkish or white, narrowly obovate to obovate, glabrous; ovary greenish white or reddish white, broadly ovoid to obovoid, adaxially distinctly convex, villous, with parietal placentation; wings 3, unequal; lateral wings narrower, curved along length of fruit body; abaxial wing obliquely triangular or ligulate, rarely obovate-oblong. Capsule nodding, 7–11 × 5–8 mm. Fl. Aug–Dec, fr. Nov–Mar. $2n = 30^*$.

- Limestone slopes, moist caves; 200–600 m. Guangxi (Du'an).

133. *Begonia rex* Putzeys, Fl. Serres Jard. Eur. 2: 141. 1857.

大王秋海棠 da wang qiu hai tang

Begonia longiciliata C. Y. Wu.

Herbs, to 40 cm tall. Rhizomes elongate, 7–14 mm in diam. Leaves basal; stipules caducous, 1.4–1.5 × 1.6–1.8 cm, membranous; petiole to 35 cm, densely long hirsute; blade abaxially purplish, adaxially dark green with a grayish green or silver horseshoe-shaped spot, ovate to narrowly ovate, asymmetric, 6–33 × 5–21 cm, abaxially sparsely hairy, adaxially long setose, venation palmate, 6- or 7-veined, base oblique, cordate, margin serrulate and ciliate, apex shortly acuminate. Inflorescences 10–13 cm tall, subglabrous. Staminate flowers: pedicel 2.2–3.5 cm; tepals 4, pinkish to pink, glabrous, outer 2 oblong-ovate, 1.3–2 cm × 8–17 mm, apex obtuse to acute, inner 2 oblong-lanceolate, 0.9–1.8 cm × 3.5–8 mm; stamens 100–120; filaments 2–5.4 mm; anthers oblong, 1.3–2.9 mm, apex acuminate. Pistillate flowers: pedicel 2.9–3.1 cm; tepals 5, unequal, elliptic to broadly ovate, glabrous, largest ca. 2 × 1.5–1.7 cm, smallest 1.6–1.8 cm × 6–8 mm, apex acute to obtuse; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, free, 4.4–5.2 mm; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial

wing ligulate or falcate, 1.5–2.5 cm, apex rounded; lateral wings lunate, 3.5–5 mm. Fl. May, fr. Aug. $2n = 22^*$.

Forests, on rocks and in caves in valleys; 400–1100 m. Guangxi, Guizhou, Yunnan [NE India, Vietnam].

Begonia sizemoreae Kiew (Gard. Bull. Singapore 56: 95. 2004), described from Vietnam, definitely belongs to the same complex as *B. rex*, but the distinction between the two species awaits further study.

134. *Begonia rhynchocarpa* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 370. 2005.

喙果秋海棠 hui guo qiu hai tang

Herbs, rhizomatous. Rhizomes creeping, 1–2 mm in diam. Leaves basal; stipules lanceolate; petiole 5.5–10 cm, villous; blade ovate, 6–7 × 4.5–5 cm, slightly rugose, base slightly and obliquely cordate, margin remotely serrate. Inflorescences with 4–6 flowers in a dichasial cyme; peduncle 4–5.5 cm. Staminate flowers: tepals 4, red, outer 2 ovate, ca. 1 × 1.1–1.2 cm, inner 2 elliptic, apex slightly emarginate. Pistillate flowers: pedicels ca. 7 mm; tepals 3, pinkish, glabrous, outer 2 broadly obovate, 9–10 × 8–9 mm, inner 1 elliptic, ca. 6 × 3 mm; ovary narrowly trigonous, 1-loculed with parietal placentation; styles 3, ca. 3 mm; stigmas reniform, 0.8–0.9 mm. Capsule nodding, narrowly trigonous, ca. 12 × 2–3 mm; wings 3, equal, 1–1.5 mm. Fl. Jan–May.

- Secondary forests on limestone hills. Yunnan (Hekou).

135. *Begonia rockii* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 544. 1939.

滇緬秋海棠 dian mian qiu hai tang

Herbs. Rhizomes elongate, 9–14 mm in diam. Leaves basal; stipules triangular-ovate, 5–16 × 3–10 mm, abaxially remotely pubescent, apex acute; petiole 3–20 cm, rusty hairy; blade abaxially reddish, abaxially dark green with brownish irregular fine spots, sometimes with white spots between main veins, broadly ovate, asymmetric, 5.5–30 × 3.5–20 cm, abaxially hispid, adaxially hispidulous, venation palmate, 6- or 7-veined, base strongly oblique, cordate, margin remotely and minutely serrulate, ciliate, apex acute or obtuse. Inflorescences sparsely hairy; bracts ovate-oblong, 5–8 × 3–5 mm, abaxially pilose, margin ciliate, apex obtuse or acute. Staminate flowers: pedicel 1–1.8 cm; tepals 4, white, outer 2 broadly ovate or orbicular, 1–1.9 × 0.7–1.4 cm, abaxially scabrescent, inner 2 obovate, 8–17 × 6–10 mm; stamens ca. 120; filaments 1–6.1 mm, fused at base; anthers obovoid-globose, 1–1.4 mm, apex truncate or emarginate. Pistillate flowers: pedicel 0.9–1.1 mm; tepals 5, white, unequal, broadly ovate to oval, largest 6–10.5 × 4.4–9.1 mm, abaxially scabrescent, smallest 4.5–9.5 × 3.5–4.7 mm; ovary elliptic, scabrescent, 2-loculed; placentae axile, bilamellate; styles 2, 2–6.2 mm, fused to halfway; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing ligulate, ca. 1.6 × 1.2 cm, apex rounded; lateral wings 5.2–6.6 mm. Fl. Nov.

Forests, rock faces; 700–800 m. Yunnan (Yingjiang) [Myanmar].

136. *Begonia rongjiangensis* T. C. Ku, Acta Phytotax. Sin. 33: 279. 1995.

榕江秋海棠 rong jiang qiu hai tang

Herbs, deciduous. Tubers globose, 5–8 mm in diam. Leaves basal, 2–5; stipules caducous; petiole 4–9.5 cm, glabrous; blade asymmetric, narrowly ovate, 8.5–11 × 5.5–9.5 cm, glabrous, venation palmate, 5–7-veined, base oblique, slightly cordate, margin shallowly serrate, sometimes biserrate, apex acuminate. Inflorescence 15–22 cm tall, glabrous; flowers red; pedicel 3–8(–10) mm, glabrous; bracts caducous, lanceolate, ca. 3 mm. Staminate flowers: tepals 4, outer 2 depressed-ovate, 6–8 × 6–7 mm, abaxially villous, inner 2 oblong, 6–8 × 1–2 mm; stamens numerous; filaments fused to ca. 1 mm at base; anthers oblong, 1–2 mm, apex emarginate. Pistillate flowers: tepals 2, broadly obovate, 7–8 × 6–7 mm, apex emarginate; ovary oblong, pilose, 3-winged; abaxial wing oblate-triangular, ca. 10 × 5 mm, apex acute; lateral wings smaller, lunate, 1–2 mm; styles 3; stigma globose. Fl. Aug.

- Slopes by streams. Guizhou (Rongjiang).

This species is similar to *Begonia labordei* but can be distinguished by the 2-tepaled pistillate flowers.

137. *Begonia rotundilimba* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 335. 1994.

圓叶秋海棠 yuan ye qiu hai tang

Herbs. Rhizomes elongate, 3–4 mm in diam. Leaves basal; stipules ovate-triangular, ca. 7 × 4 mm, glabrous, apex acuminate or acute; petiole 12–16 cm, brown hispidulous; blade ovate or oblate-orbicular, asymmetric, 7–8.5 × ca. 6.5 cm, abaxially hispidulous, adaxially glabrous or pilose, venation palmate, 6-veined, base oblique, cordate, margin irregularly denticulate, apex acute. Inflorescences 11–12 cm tall, brown hairy; peduncle 6.5–11.2 cm, subglabrous; bracts ovate-lanceolate, 1.3–1.4 cm × ca. 4 mm, glabrous, apex acuminate. Staminate flowers: pedicel ca. 1.8 cm; tepals 4, pale, outer 2 orbicular, ca. 1.7 × 1.6 cm, glabrous, inner 2 smaller, ca. 1.3 × 1 cm; stamens numerous; filaments ca. 1.8 mm, fused at base; anthers oblong, ca. 1.8 mm. Pistillate flowers: pedicel ca. 2.5 cm; tepals 5, glabrous, largest orbicular, ca. 1.2 cm, smallest elliptic, 1–1.2 cm × 4–6 mm; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3; stigmas 2-cleft, spiraled. Capsule nodding, ellipsoid, ca. 1.4 × 1.2 cm, subequally 3-winged; abaxial wing broadly triangular, ca. 6 × 14 mm; lateral wings smaller. Fl. Apr, fr. Jul.

- Evergreen forests, shaded moist environments; 1600–1800 m. Yunnan (Pingbian).

138. *Begonia rubinea* H. Z. Li & H. Ma, Bot. Bull. Acad. Sin. 46: 377. 2005.

玉柄秋海棠 yu bing qiu hai tang

Herbs, rhizomatous. Leaves basal; stipules rose-pink, triangular, 5–7 mm, glabrous, margin entire, apex acuminate; petiole ruby-red, 13–31 cm, glabrous; blade abaxially rufous, adaxially emerald colored, wine colored on veins, obovate, asymmetric, 3–9 × 2–6 cm, thinly leathery, abaxially sparsely rufous tribuloid on veins, adaxially sparsely white tribuloid when young, venation palmate, 6- or 7-veined, base oblique, cordate, margin irregularly crenate, apex acuminate. Inflorescence near-

ly glabrous; peduncle ruby-red, 9–14 cm; bracts subulate, ca. 10 × 3 mm. Staminate flowers: pedicel ca. 7 mm; tepals 4, pink, outer 2 broadly ovate, 1.4–1.8 × 1.3–1.5 cm, abaxially pilose, inner 2 lanceolate, 1.2–1.4 cm × 5–6 mm; stamens 15–30; filaments fused 2–3 mm at base. Pistillate flowers: pedicel 7–12 mm; tepals 5, pink, ovate, abaxially sparsely pilose; styles 2, fused to halfway; stigmas 2-cleft, spiraled; ovary 2-loculed. Capsule unequally 3-winged; abaxial wing ligulate, apex obtuse; lateral wings smaller, crescent-shaped.

- Evergreen forests; on moist sandstone; ca. 700 m. N Guizhou (Xishui).

139. *Begonia ruboides* C. M. Hu ex C. Y. Wu & T. C. Ku, Acta Phytotax. Sin. 33: 260. 1995.

匍地秋海棠 pu di qiu hai tang

Herbs, prostrate. Rhizomes absent. Stems rooting at nodes. Leaves basal; stipules oblong, 5–6 mm, margin entire, apex acuminate; petiole 2–6.5 cm, densely brown hirsute; blade orbicular or broadly ovate, asymmetric, 2.5–6 × 2–5 cm, abaxially hirsute, adaxially red setose, venation palmate, 6- or 7-veined, base oblique, shallowly cordate, margin shallowly and remotely denticulate, apex rounded. Inflorescences hirsute; bracts ovate-lanceolate, 8–10 mm, glabrous or abaxially hairy, apex acuminate. Staminate flowers: pedicel 1–2 cm; tepals 4, white, outer 2 broadly ovate, ca. 1.5 × 1.4 cm, inner 2 oblong-obovate, ca. 1 cm × 5–6 mm; stamens numerous; filaments free, ca. 1.2 mm; anthers oblong, ca. 0.9 mm. Pistillate flowers: tepals 4 (from protologue, requiring confirmation), white, outer 2 broadly ovate, 8–10 mm, inner 2 oblong; ovary sparsely hairy, 3-loculed, placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, U-shaped. Capsule nodding, ovoid, unequally 3-winged; abaxial wing narrowly triangular, ca. 1 cm; lateral wings smaller, broadly triangular. Fl. Mar–May, fr. Jun–Jul.

- Scrubby vegetation and forests, shaded moist environments; 1300–2200 m. Yunnan (Jinping, Pingbian).

140. *Begonia rubropunctata* S. H. Huang & Y. M. Shui, Acta Bot. Yunnan. 16: 339. 1994.

红斑秋海棠 hong ban qiu hai tang

Herbs. Rhizomes 2–3 cm in diam. Leaves basal; stipules ovate, ca. 8 mm, apex acute; petiole 15–25 cm, glabrous, with red linear dots; blade orbicular, asymmetric, 15–20 × 15–20 cm, sparsely setulose, venation palmate, 5- or 6-veined, base slightly oblique, cordate, margin denticulate, 5- or 6-lobed; lobules present, apex acuminate to caudate. Inflorescences glabrous; bracts broadly ovate, ca. 2 cm, glabrous, apex acute. Staminate flowers: pedicel ca. 1 cm; tepals 4, pink, outer 2 broadly obovate, ca. 2.2 × 1.5 cm, inner 2 obovate-oblong, ca. 1.8 × 0.8–1 cm, apex crenate; stamens numerous; filaments fused to halfway, 1–1.2 mm; anthers oblong, ca. 1.2 mm. Pistillate flowers: pedicel 7–8 mm; tepals 4 or 5, pink, suborbicular, glabrous, largest one ca. 1 × 1.2 cm, apex acute; ovary 2-loculed, placentae axile, bilamellate; styles 2; stigmas 2-cleft, spiraled. Capsule nodding, ellipsoid, unequally 3-winged; abaxial wing ligulate, ca. 1.5 cm; lateral wings smaller.

- Forests, limestone rock faces; 600–1100 m. Yunnan (Xishuang-

banna).

This species is similar to *Begonia pedatifida* but differs by its spotted leaves and the petiole with red, linear dots.

141. *Begonia scitifolia* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 541. 1939.

成凤秋海棠 cheng feng qiu hai tang

Herbs. Rhizomes elongate. Stems very short. Leaves basal; stipules caducous; petiole 2.7–4 cm, hairy; blade broadly ovate to suborbicular, 9–11 cm, abaxially subglabrous, adaxially sparsely hispidulous, base cuneate, margin shallowly and remotely serrulate, distinctly lobed, nearly divided to leaf base, apex acuminate. Inflorescences (6–)12–15 cm tall, glabrous. Staminate flowers: pedicel 1.7–3 cm; tepals 4, outer 2 broadly ovate, 0.9–1.2 × 0.9–1.2 cm, abaxially hairy, inner 2 elliptic, 9–11 × 5–6 mm; stamens numerous; filaments 1.1–1.5 mm; anthers obovoid or oblong-obovoid, 0.9–1.4 mm, apex emarginate. Pistillate flowers: pedicel 7–9 mm; tepals 5, unequal, largest ovate or broadly elliptic, 7–8 × 5–5.2 mm, abaxially hairy, smallest broadly elliptic, 6–7 × 3.4–4 mm; ovary pilose, 2-loculed; placentae axile, bilamellate; styles 2, 2.5–2.8 mm, free; stigmas spiraled. Capsule unequally 3-winged. Fl. Jun.

- 1300–1600 m. Yunnan (Suijiang).

This species is similar to *Begonia laminariae* but differs by its leaf blade dividing nearly to the base.

142. *Begonia semiparietalis* Yan Liu et al., Bot. Stud. 47: 218. 2006.

半侧膜秋海棠 ban ce mo qiu hai tang

Herbs, rhizomatous. Rhizomes 9–12 mm in diam. Leaves basal; stipules triangular or ovate-triangular, 7–10 × 5–9 mm; blade with white spots along major veins, sometimes abaxially dark brown, with pale green major veins, broadly ovate or suborbicular, 3.5–15 × 3–13 cm, rugose, adaxially sparsely setulose-pilose, basally 5–7-veined, tertiary veins percurrent, base deeply cordate. Inflorescence a dichasial cyme with 6–25 flowers; peduncle 1.2–3 cm, glabrous; bracts reddish, ovate, oblong, or orbicular. Staminate flowers: tepals 4, outer 2 reddish or pinkish, suborbicular; inner 2 tepals narrowly obovate or oblanceolate; androecium zygomorphic; stamens 13–40; anthers oblong-obovoid, apex subemarginate. Pistillate flowers: tepals 3, outer 2 tepals pinkish or reddish, suborbicular; inner 1 pinkish white, oblanceolate or narrowly obovate, glabrous; ovary reddish, ellipsoid, long glandular pilose, unequally 3-winged, 1-loculed with parietal placentation above middle, lower half with axile placentation; abaxial wing lunate; styles 3. Capsule nodding, reddish when fresh. $2n = 30^*$.

- Limestone hills. Guangxi (Fusui).

143. *Begonia setifolia* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 549. 1939.

刚毛秋海棠 gang mao qiu hai tang

Begonia tsaii Irmscher.

Herbs. Rhizomes elongate, ca. 6 mm in diam. Leaves bas-

al; stipules broadly ovate or triangular-ovate, 5.5–7 × 4–5 mm, glabrous, apex cuspidate; petiole 6–12 cm, densely brown villous; blade broadly ovate to suborbicular, asymmetric, 5–11 × 4.5–9 cm, abaxially hirsute when young, adaxially red setose, venation palmate, 7- or 8-veined, base cordate, margin indistinctly serrulate, apex shortly caudate, rarely acute. Inflorescences 20–30 cm tall, brown villous; bracts ovate, 4–10 × 2.4–8 mm, margin ciliate, apex obtuse. Staminate flowers: pedicel 1.3–1.4 cm; tepals 4, pink, outer 2 broadly ovate to suborbicular, 0.6–2.2 × 1.6–1.8 cm, abaxially pilose, inner 2 oblong, 1.1–1.2 cm × 3.8–4.1 mm; stamens numerous; filaments 2–2.5 mm; anthers elliptic or obovoid, 1–1.4 × ca. 1.7 mm, apex emarginate. Pistillate flowers: pedicel 8–9 mm; ovary broadly ovoid, 7–8 × 6–7 mm, villous, 3-loculed; placentae axile, bilamellate; tepals 5, unequal, largest suborbicular, 1.1–1.5 × 0.9–1.3 cm, glabrous, smallest oblong, 6.5–3.5 mm; styles 3, 3–3.8 mm; stigmas 2-cleft, spiraled. Capsule nodding, ovoid, unequally 3-winged; abaxial wing subtriangular, 6–7 mm; lateral wings narrowly triangular, 2–3 mm. Fl. May, fr. May.

- Broad-leaved forests, in shaded moist environments; 1300–2100 m. SE Yunnan.

This species is similar to *Begonia ruboides* but differs by its rhizomatous habit.

144. *Begonia setulosopeltata* C. Y. Wu, Acta Phytotax. Sin. 35: 48. 1997 [“*setuloso-peltata*”].

刺盾叶秋海棠 ci dun ye qiu hai tang

Herbs, rhizomatous. Rhizomes creeping. Leaves all basal, peltate, long petiolate; stipules caducous; petiole 4–8 cm, very sparsely villous; blade abaxially pale green, adaxially green with numerous white dots, ovate or broadly ovate, 4–8 × 4–5.5 cm, abaxially sparsely hirsute on major veins, adaxially sparsely hispidulous or setulose, basally 7-veined, tertiary veins weakly percurrent, base slightly cordate to rounded, margin serrulate or denticulate, apex acuminate or shortly caudate. Inflorescences axillary; peduncle ca. 21 cm, subglabrous; flowers several, pale purple, in dichasial cyme; pedicel 1.2–1.5 cm, glabrous; bracts caducous, ovate or suborbicular, 7–9 × 4–5 mm, margin remotely serrate. Staminate flower: tepals 4, outer 2 broadly ovate, ca. 1.2 × 1 cm, glabrous, base subrounded, apex rounded, inner 2 oblong, ca. 6 × 4 mm, apex obtuse, base broadly cuneate; stamens numerous; filaments 1–2 mm; anthers obovoid-oblong. Pistillate flower: tepals 4, outer 2 oblate-orbicular, inner 2 oblong; ovary oblong, glabrous, with 3 subequal wings, placentae parietal; styles fused at base. Capsule nodding, 15–16 × 4–5 mm. Fl. Feb–Apr, fr. Apr–May.

- Shaded places of valleys, limestone caves; ca. 300 m. Guangxi (Donglan, Hechi).

145. *Begonia sikkimensis* A. Candolle, Ann. Sci. Nat., Bot., sér. 4, 11: 134. 1859.

锡金秋海棠 xi jin qiu hai tang

Herbs, ca. 30 cm tall. Rhizomes elongate, ca. 1.5 cm in diam. Stems glabrous. Leaves basal and cauline; stipules lanceolate, ca. 1.1 cm, membranous, glabrous, apex acuminate; petiole 3–15 cm, glabrous; blade suborbicular, slightly asymmetric, 12–19 × 10–20 cm, glabrous, venation palmate, 5–7-

veined, base shallowly cordate, margin remotely and shallowly denticulate, distinctly lobed, divided to more than 2/3 of leaf length; lobes 5–7, apex long acuminate. Inflorescences glabrous; peduncle 8–12 cm; bracts ovate-lanceolate, 2–2.5 cm, membranous, apex acuminate. Staminate flowers: pedicel 1.5–1.8 cm; tepals 4, pink, outer 2 ovate, inner 2 elliptic, smaller; stamens numerous; anthers obovoid, ca. 1 mm, apex obtuse. Pistillate flowers: tepals 5, unequal; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, obovoid-oblong, 1.5–2 cm × 6–7 mm, unequally 3-winged; abaxial wing oblong-triangular; lateral wings smaller. Fl. Aug–Sep, fr. Dec–Jan.

Evergreen broad-leaved forests, shaded moist environments along streams; 800–1200 m. SE Xizang (Médog) [Bhutan, NE India, Nepal].

146. *Begonia silletensis* (A. Candolle) C. B. Clarke subsp. **mengyangensis** Tebbitt & K. Y. Guan, Novon 12: 134. 2002.

厚壁秋海棠 hou bi qiu hai tang

Herbs, dioecious. Rhizomes elongate, to 3.6 cm in diam. Leaves basal; stipules caducous, 1.7–2.7 × 1–1.8 cm, membranous; petiole to 75 cm, densely minutely hairy; blade ovate or broadly ovate, asymmetric, (11–)13–53 × 11–40 cm, abaxially minutely hairy, adaxially subglabrous, venation palmate, 7–9-veined, base oblique, deeply cordate, margin remotely serrulate, apex caudate-acuminate. Inflorescences axillary and terminal, 1.2–6(–12) cm, minutely hairy; bracts caducous, membranous. Flowers fragrant. Staminate flowers: pedicel to 4.2 cm; tepals 4, white, broadly ovate, 2–2.6 × 1.7–2.2 cm, abaxially minutely hairy, inner 2 oblate-orbicular, 0.9–2.2 × 0.7–1.4 cm; stamens 115–122; filaments 1–2.2 mm, fused to halfway; anthers oblong, 2.1–3.1 mm, apex convex. Pistillate flowers: pedicel 1.5–2.5 cm; tepals 4–6, white, outer 2 broadly elliptic to elliptic, 1.2–1.9 × 0.8–1.2 cm, abaxially minutely hairy, inner 2 elliptic to obovate, 1.1–2 cm × 5–14 mm; ovary densely minutely hairy when young, 4-loculed; placentae axile, aberrant; styles 4, branched; stigmas 2-cleft, spiraled. Fruit berrylike, ellipsoidal, indehiscent, pendulous, ca. 1.3 × 1.8–1.9 cm, lacking ridges or wings or with up to 4 unequal, triangular, blunt ridges, apex with beak to 4 mm. Fl. Mar–May, fr. Apr–May. *2n* = 22*.

- Primary tropical forests, shaded moist environments in valleys and along streams; 500–800(–1200) m. S and SW Yunnan.

Begonia silletensis subsp. *silletensis* occurs in Bangladesh, NE India, Myanmar, and N Thailand.

147. *Begonia sinofloribunda* Dorr, Harvard Pap. Bot. 4: 265. 1999.

多花秋海棠 duo hua qiu hai tang

Begonia floribunda T. C. Ku, Acta Phytotax. Sin. 35: 48. 1997, not Carrière (1875).

Herbs, erect. Stems sometimes branched, 12–50 cm, 5–10 mm in diam., somewhat woody in appearance. Leaves cauline; stipules caducous, 0.8–1.4 cm × 4–5 mm; petiole 2.5–6 cm, glabrous; blade very shallowly peltate (petiole 1–2 mm from margin at base), oblong-lanceolate or ovate-lanceolate, slightly

asymmetric, 4.5–14 × 1.5–4 cm, glabrous, venation palmate-pinnate, 5- or 6-veined, base rounded, margin remotely and minutely serrulate, apex long acuminate or long caudate. Inflorescences 2–4 cm; glabrous; bracts oblong, 2–7 × 0.6–4 mm, glabrous. Staminate flowers: pedicel 0.6–2.6 cm; tepals 2, yellowish green, orbicular, 3–8 × 3.5–9 mm; stamens 25–31; filaments free, 1–2 mm; anthers obovoid, 0.6–1.1 mm. Pistillate flowers: pedicel 0.6–2.6 cm; ovary oblong, 5–7 mm, glabrous, 3-loculed; placentae axile, bilamellate; tepals 2(or 3), yellowish green, broadly ovate, 3–7 × 4–10 mm; styles 3, fused to half-way, 2.1–3.3 mm; stigmas 2-cleft, slightly spiraled. Capsule pendulous, oblong-ovoid, 1.3–1.4 cm × 6–7 mm, unequally 3-winged; abaxial wing triangular, 1.1–1.4 cm; lateral wings smaller, 3–4 mm. Fl. Jul, fr. Aug.

- Forests, on limestone rocks; ca. 200 m. Guangxi (Longzhou).

148. *Begonia sinovietnamica* C. Y. Wu, Acta Phytotax. Sin. 35: 50. 1997 [“*sino-veitnamica*”].

中越秋海棠 zhong yue qiu hai tang

Herbs. Rhizomes elongate. Stems absent or very short. Leaves basal; stipules ovate-oblong, 7–11 mm, membranous, abaxially pubescent, margin entire, apex cuspidate; petiole 8–20 cm, densely reddish brown villous; blade ovate or broadly ovate, asymmetric, 5.5–11 × 4.8–8.5 cm, abaxially densely hirsute, adaxially hirsute, venation palmate, 6–8-veined, base oblique, cordate, margin irregularly serrulate or biserrate, apex shortly caudate or acuminate. Inflorescences 9–12 cm tall; hispidulous or subglabrous; bracts lanceolate, ca. 8 mm, margin ciliate, apex acuminate. Staminate flowers: pedicel 1–1.5 cm; tepals 4, white, outer 2 broadly ovate-oblong, ca. 2.1 × 1.6 cm, abaxially shortly pilose, inner 2 oblong, ca. 1.2 × 5–6 mm; stamens numerous; filaments ca. 1.2 mm, free; anthers oblong, ca. 1.5 mm, apex obtuse. Pistillate flowers: pedicel 1–1.5 cm; tepals 5, white, outer 2 obovate-oblong, glabrous; ovary glabrous or sparsely short-pilose, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, ovoid, ca. 1 × 1.1 cm, subequally 3-winged. Fl. Jul, fr. Aug.

- Understories of broad-leaved forests, on slopes or by streams. Guangxi (Dongxing, Guiping).

149. *Begonia smithiana* T. T. Yu, Notes Roy. Bot. Gard. Edinburgh 21: 44. 1951.

长柄秋海棠 chang bing qiu hai tang

Herbs. Rhizomes elongate, 5–10 mm in diam. Stems very short. Leaves mostly basal; stipules ovate, 3.5–5 × 2–3 mm, subglabrous, apex acuminate; petiole sometimes reddish, to 25 cm, sparsely to densely hairy; blade sometimes purple-red on veins, ovate to broadly ovate, rarely oblong-ovate, asymmetric, (3.5–)5–9(–12) × 3–5(–8) cm, abaxially hirsute, adaxially sparsely hispidulous, venation palmate, 6- or 7-veined, base oblique cordate, margin irregularly serrate, very shallowly lobed, apex caudate or acuminate. Inflorescences 12–20(–30) cm tall, subglabrous. Staminate flowers: pedicel 1.2–2.0 cm; tepals 4, pinkish, outer 2 broadly ovate, 1–1.4 × 0.8–1.6 cm, abaxially hairy, inner 2 oblong-ovate, 0.6–1.3 cm × 3–9 mm; stamens 68–

81; filaments 1–3.9 mm, fused at base; anthers obovoid, 1–1.7 mm. Pistillate flowers: pedicel 1.2–1.5 cm; tepals 5, pinkish, largest broadly ovate, 8–14 × 7–13 mm, abaxially pilose, smallest narrowly elliptic to oblong-obovate, 4–14 × 2–10 mm; ovary sparsely hairy, 2-loculed; placentae axile, bilamellate; styles 2, fused to 2/3, ca. 4.7 mm; stigmas 2-cleft, spiraled. Capsule nodding, obovoid-globose, unequally 3-winged; abaxial wing subtriangular, ca. 1.5 cm, apex obtuse; lateral wings smaller. Fl. Aug, fr. Sep.

- Forests or scrubby vegetation, on rocks in shaded moist environments along streams or in valleys; 700–1300 m. Guizhou, Hubei, Hunan, Sichuan.

150. *Begonia subhowii* S. H. Huang, Acta Bot. Yunnan. 21: 20. 1999.

粉叶秋海棠 fen ye qiu hai tang

Herbs. Rhizomes elongate. Stems absent or very short. Leaves mostly basal; petiole 18–20 cm, glabrous; blade obliquely ovate, asymmetric, 4.5–9 × 10–11 cm, glabrous, venation palmate, base cordate, margin irregularly serrulate, apex acute to shortly caudate. Inflorescences glabrous; bracts ovate, to 5 × 3 cm, glabrous, apex acuminate. Staminate flowers: pedicel 1–2 cm; tepals 4, white to pinkish, outer 2 elliptic, ca. 2 × 1.2 cm, glabrous, inner 2 oblong, ca. 1.5 × 0.6 cm; stamens numerous; filaments ca. 1 mm; anthers obovoid-oblong, ca. 1.5 mm, apex rounded. Pistillate flowers: pedicel ca. 1.5 cm; tepals 5, white to pinkish, unequal, broadly ovate to broadly elliptic; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2, free; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing ligulate, ca. 1.5 × 1.3 cm; lateral wings ca. 7 mm.

- Forest understories, on limestone; 700–1500 m. Yunnan (Malipo) [Vietnam].

This species is similar to *Begonia howii* but differs by its obliquely ovate leaves and the bracts up to 5 cm.

151. *Begonia sublongipes* Y. M. Shui, Acta Bot. Yunnan. 26: 484. 2004.

保亭秋海棠 bao ting qiu hai tang

Herbs, prostrate. Stems 28–30 cm, sparsely hispid. Leaves cauline; stipules ovate-triangular, 8–9 × 3–4 mm, glabrous, apex acuminate and cuspidate; petiole 5–14 cm, hispid; blade ovate-elliptic, asymmetric, 7–8 × ca. 4.5 cm, abaxially glabrous, adaxially pubescent on veins, venation palmate-pinnate, 5- or 6-veined, base strongly oblique, cordate, margin shallowly and sparsely denticulate, apex shortly acuminate. Staminate flowers: tepals ?2. Pistillate flowers not seen. Capsule solitary, axillary, broadly obtriangular, ca. 1.8 × 2 cm, glabrous, subequally 3-winged, 3-loculed; placentae axile, bilamellate; styles 3, 2–2.5 mm, free; stigmas U-shaped, spiraled.

- Forests. Hainan (Baoting).

Begonia sublongipes is known only from the type gathering made in 1936. Further gatherings would be desirable to understand this entity.

152. *Begonia suboblata* D. Fang & D. H. Qin, Acta Phytotax. Sin. 42: 177. 2004.

都安秋海棠 du an qiu hai tang

Herbs rhizomatous. Rhizomes creeping, sometimes branched, villous; internodes 3–6 × 2–6 mm. Leaves all basal; stipules broadly or very broadly ovate, 3–5 × 3–6 mm, fimbriate; petiole 2–11 cm, densely villous; blade with veins purple-red on both surfaces when young, oblate-orbicular or reniform, 2.5–6 × 3.4–8 cm, herbaceous or thickly so, abaxially villous on veins, adaxially sparsely long-hirsute, basally 6–8-veined, smaller veins obscure, tertiary veins randomly reticulate, base cordate, margin denticulate and long-ciliate, without a distinct apex. Inflorescence axillary; peduncle 4–12 cm, glabrous or subglabrous; flowers 2–4 in 1–2 times branched dichasial cyme; bracts caducous, glabrous. Staminate flowers: pedicel 5–15 mm; tepals 4, outer 2 nearly oblate-orbicular, 9–10 × 11–13 mm, inner 2 obovate, 6–7 × 3–3.5 mm, apex obtuse; stamens numerous; filaments 1–1.5 mm; anthers obovoid, ca. 1.2 mm, apex submarginate. Pistillate flowers: pedicel 6–10 mm; tepals 3, outer 2 nearly oblate-orbicular, ca. 6 × 8 mm, inner narrowly obovate, ca. 5 × 2.5 mm, apex obtuse; styles 3, fused at base, ca. 1 mm; ovary glabrous, 3-loculed at middle to lower part, placentation septal (parietal toward summit of ovary). Capsule nodding, ovoid, 7–10 × 5–7 mm, glabrous, unequally 3-winged; abaxial wing lunate or suborbicular, ca. 5 mm. Fl. Apr.

- On limestone rocks in forests; ca. 800 m. Guangxi (Du'an).

153. *Begonia summoglabra* T. T. Yu, Bull. Fan Mem. Inst. Biol., n.s., 1: 117. 1948.

光叶秋海棠 *guang ye qiu hai tang*

Herbs, deciduous. Tubers globose, 5–8(–20) mm in diam. Leaves usually solitary, basal; stipules caducous, triangular-ovate, membranous, margin ciliate, apex acuminate; petiole 5.5–14.5 cm, glabrous; blade oblong-ovate, asymmetric, 8–16.2 × 4–11 cm, succulent, glabrous, venation palmate, base oblique, shallowly cordate, margin remotely serrulate; apex acuminate. Inflorescence terminal, 8–13 cm tall, glabrous; bracts caducous, lanceolate, 3–5 mm, membranous. Staminate flowers: pedicel 8–10 mm; tepals 2, pink, suborbicular, ca. 1 × 1 mm; stamens numerous; filaments free, ca. 0.8 mm; anthers oblong, ca. 1 mm, apex emarginate. Pistillate flowers: pedicel 9–10 mm; tepals 2, pink, broadly ovate or suborbicular, ca. 8 × 6 mm; ovary 3-loculed; placentae axile, undivided; styles 3, free; stigmas U-shaped. Capsule immature, unequally 3-winged. Fl. Dec.

- On rocks in moist environments; ca. 1400 m. Yunnan (Pingbian).

154. *Begonia* ×*taipeiensis* C. I Peng, Bot. Bull. Acad. Sin. 41: 151. 2000.

台北秋海棠 *tai bei qiu hai tang*

Herbs. Rhizomes ca. 1.2 cm in diam. Stems erect, 6–45 cm, glabrous. Leaves basal and cauline; stipules caducous, broadly ovate or triangular, 8(–17) × 8(–15) mm, glabrous, margin entire, apex apiculate; petiole to 26(–35) cm, glabrous or sparsely pilose; blade asymmetric, lanceolate-ovate to ovate, 6–14(–25) × 2.5–6.7(–11.5) cm, herbaceous, sparsely scaberrulous, venation palmate-pinnate, base obliquely cordate, margin irregularly denticulate or serrulate, very shallowly lobed; apex acuminate to apiculate. Inflorescences to 5 cm, glabrous; pe-

duncle ca. 3 cm; bracts caducous, lanceolate to ovate, to 8(–17) × 3(–12) mm, glabrous, margin ciliate, apex mucronate. Staminate flowers: tepals 4, white or pinkish, glabrous, outer 2 broadly ovate, 4–9 × 4–10 mm, inner 2 broadly elliptic, 4–8 × 3–6 mm; stamens 71–96; filaments free; anthers obovoid, 0.8–1.2 × 0.4–0.5 mm. Pistillate flowers: tepals 5 or 6, white or pinkish, glabrous, obovate to broadly obovate, unequal, 12–18 × 6–15 mm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2 or 3, free; stigmas 2-cleft, spiraled. Capsule nodding or pendulous, unequally 3-winged; abaxial wing triangular, 5–7 × 5–7 mm; lateral wings 1.8–3 mm. $2n = 41^*$.

- Forests; 200–500 m. N Taiwan (Taibei).

This taxon is a natural hybrid between *Begonia formosana* and *B. longifolia*.

155. *Begonia taiwaniana* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 125. 1911.

台湾秋海棠 *tai wan qiu hai tang*

Begonia taiwaniana var. *albomaculata* S. S. Ying.

Herbs. Rhizomes short, stout. Stems 40–200 cm tall, branching twice or more, glabrous. Leaves cauline; stipules caducous, narrowly ovate, to 2.7 × 1.9 cm; petiole to 4(–7) cm, glabrous; blade green, occasionally with white dots, lanceolate, asymmetric, 6–14 × 1.5–4 cm, remotely scaberrulous, venation palmate-pinnate, 5–8-veined, base oblique, cordate, margin irregularly serrulate, apex acuminate to caudate. Inflorescences 5–11 cm, glabrous; bracts caducous, narrowly triangular, to 2.1 × 0.9 cm, thickly papery, margin entire, apex acuminate. Staminate flowers: pedicel 1–2 cm; tepals 4, white to pinkish, glabrous, outer 2 obovate to very broadly obovate, 0.9–1.8 × 0.8–1.7 cm; inner 2 oblanceolate to narrowly obovate, 0.8–1.6 cm × 4–8 mm; stamens 64–91; filaments free; anthers very narrowly obovoid, 0.9–1.8 mm. Pistillate flowers: pedicel 1–2 cm; tepals 5(or 6), subequal, narrowly obovate to orbicular, 0.7–1.6 cm × 4–14 mm; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3, free; stigmas 2-cleft, spiraled. Capsule pendulous, unequally 3-winged; abaxial wing falcate, 1.7–2 cm; lateral wings smaller. Fl. Jun–Oct. $2n = 38^*$.

- Forest understories. S Taiwan.

156. *Begonia taliensis* Gagnepain, Bull. Mus. Natl. Hist. Nat. 15: 279. 1919.

大理秋海棠 *da li qiu hai tang*

Herbs, deciduous. Tubers globose, 1.1–1.8 cm in diam. Leaves 1(or 2), basal or sometimes 1 cauline; stipules caducous, membranous; petiole 21–41 cm, subglabrous or pilose; blade purplish on veins, suborbicular or oblate-orbicular, slightly asymmetric, (10–)13–23 × (13–)17–26 cm, abaxially subglabrous or sparsely hirsute, adaxially sparsely hirsute, venation palmate, 7–9-veined, base cordate, margin irregularly serrate, distinctly lobed, divided to 2/3 of leaf length; lobes 7–9, apex acute to acuminate; lobule present. Inflorescences terminal, racemose at base, 19–30 cm tall, glabrous; bracts caducous, ovate-lanceolate, ca. 5 mm, membranous, apex obtuse. Staminate flowers: pedicel 1.2–2.5 cm; tepals 4, pinkish, outer 2 broadly ovate, ca. 1.2 × 1 cm, inner 2 oblong, ca. 7 × 3 mm; stamens numerous; filaments ca. 1.2 mm, free; anthers obovoid,

ca. 1.1 mm, apex emarginate. Pistillate flowers: pedicel 1.2–2.5 cm; tepals 3, pinkish, outer 2 ovate, ca. 10×8 mm, inner 2 oblong, ca. 5.5×3 mm; ovary glabrous, veins distinct, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 3; stigmas 2-cleft, spiraled. Capsule pendulous, ovoid-oblong, $1.2\text{--}1.5 \text{ cm} \times 7\text{--}8 \text{ mm}$, unequally 3-winged; abaxial wing triangular, $2\text{--}2.4 \times$ ca. 1.2 cm; lateral wings smaller, ca. 1.2 cm. Fl. Aug, fr. Sep.

- Scrubby vegetation, forests; 1300–2400 m. W Yunnan.

157. *Begonia tengchiana* C. I Peng & Y. K. Chen, Bot. Bull. Acad. Sin. 46: 265. 2005.

藤枝秋海棠 teng zhi qiu hai tang

Herbs. Rhizomes to 2.1 cm in diam. Stems 38–80 cm tall, to 1.8 cm in diam. Leaves basal and cauline; stipules caducous, ovate to broadly ovate, to 2.4×1.9 cm, margin entire, apex acuminate; petiole glabrous, 7–23 cm; blade ovate to suborbicular, $9\text{--}25 \times 7\text{--}18$ cm, abaxially glabrous, adaxially sparsely scaberulous, venation palmate to palmate-pinnate, 6–9-veined, base oblique, cordate, margin remotely irregularly serrate or denticulate, apex acuminate. Inflorescences 10–24 cm; peduncle to 18 cm; bracts caducous, ovate to broadly ovate, $0.7\text{--}1.8 \text{ cm} \times 4\text{--}13$ mm, thickly papery, glabrous, margin serrate, apex acute. Staminate flowers: tepals 4, margin slightly irregularly dentate, outer 2 broadly orbicular to orbicular, $1.1\text{--}2.3 \times 0.9\text{--}2.2$ cm, abaxially strigillose, inner 2 oblanceolate to narrowly obovate, $1\text{--}2.1 \text{ cm} \times 5\text{--}11$ mm; stamens 39–68; anthers broadly oblanceolate to narrowly obovate, 1.9–2.3 mm; filaments 1.2–2.6 mm. Pistillate flowers: bracteoles in pairs, ca. 1 cm, narrowly lanceolate; tepals 5(or 6), unequal or subequal, narrowly obovate to very broadly obovate, largest $0.9\text{--}1.9 \times 0.6\text{--}1.7$ cm, smallest $0.7\text{--}1.6 \text{ cm} \times 3\text{--}9$ mm; ovary subglabrous, locules 3; placentae axile, bilamellate; styles 3, 4.2–5.1 mm, stigmas 2-cleft, spiraled. Capsule nodding, trigonous, unequally 3-winged; abaxial wing shallowly triangular, to 5 mm; lateral wings to 3 mm. $2n = 82^*$.

- Forests; 1500–1800 m. S Taiwan.

158. *Begonia truncatiloba* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 534. 1939.

截叶秋海棠 jie ye qiu hai tang

Herbs, to 80 cm tall. Rhizomes elongate. Stems to 1.7 cm in diam. Leaves basal and cauline; stipules oblong, to 4 cm, glabrous, apex acute, acuminate, or cuspidate; petiole to 45 cm, densely minutely hairy; blade ovate or oblate-orbicular, asymmetric, $8\text{--}30 \times 9\text{--}30$ cm, densely minutely hairy when young, venation palmate, 7–9-veined, base slightly oblique, deeply cordate, margin irregularly denticulate, shallowly lobed, divided to 1/3 of leaf length; lobes 5–7, apex acuminate. Inflorescences subglabrous; bracts caducous, ovate, to 2 cm, glabrous. Staminate flowers: pedicel 0.6–1.9 cm; tepals 4, white, outer 2 ovate, $1.5\text{--}1.8 \times 1.1\text{--}1.7$ cm, glabrous, inner 2 obovate, $1.1\text{--}1.6 \text{ cm} \times 5.5\text{--}10$ mm; stamens more than 200; filaments 2–4.2 mm; anthers oblong, 1.3–2.5 mm. Pistillate flowers: pedicel ca. 1.5 cm; tepals 5, white, unequal, largest ovate, $1.5\text{--}1.6 \times 1.1\text{--}1.2$ cm, smallest ca. 1.3×0.8 cm; ovary glabrous or minutely hairy when young, 2-loculed; placentae axile, bilamellate; styles 2, ca. 5.4 mm, free; stigmas 2-cleft, spiraled. Capsule nodding, ob-

long-elliptic, $1.8\text{--}2.1 \text{ cm} \times 7\text{--}10$ mm, unequally 3-winged; abaxial wing broadly ligulate, $1.3\text{--}1.5 \times 1\text{--}1.3$ cm, apex obtuse; lateral wings smaller, 3–5 mm. Fl. May, fr. Jun. $2n = 22^*$.

- Forests or in scrubby vegetation, shaded moist environments on slopes, in valleys or along streams; 1000–1600 m. SE Yunnan.

This species is similar to *Begonia edulis* but differs by the truncate lobes of the leaf blade.

159. *Begonia tsoongii* C. Y. Wu, Acta Phytotax. Sin. 33: 280. 1995.

观光秋海棠 guan guang qiu hai tang

Herbs, dwarf. Rhizomes ca. 2 mm in diam. Leaves basal; stipules membranous, caducous; petiole 4.8–7.5 cm, sparsely brown hairy; blade oblong-ovate or rhomboid-ovate, slightly asymmetric, $6\text{--}6.5 \times 1.9\text{--}3$ cm, abaxially brown hairy, adaxially subglabrous or sparsely hispidulous, venation palmate-pinnate, 5-veined, base cuneate to broadly cuneate, margin remotely serrulate, apex acuminate or caudate-acuminate. Inflorescences 7–17 cm tall, glabrous or subglabrous, with 1 or 2 flowers; bracts oblong or ovate, $6\text{--}8 \times$ ca. 4 mm, membranous. Staminate flowers: pedicel 4–12 mm; tepals 4, outer 2 broadly ovate or broadly oblong, ca. 8×6 mm, inner 2 obovate-oblong, ca. 6×4 mm; stamens numerous; filaments free; anthers oblong or obovoid. Pistillate flowers: tepals 4 or 5; ovary glabrous, probably 2-loculed; styles 2, ca. 2 mm, entirely fused; stigmas 2-cleft, spiraled. Capsule nodding, oblong, $1.1\text{--}1.3 \text{ cm} \times$ ca. 8 mm, unequally 3-winged; abaxial wing ovate-oblong, ca. 1.3×1 cm, apex rounded; lateral wings smaller, 2–3 mm. Fl. Jul–Aug, fr. Aug.

- Guangxi (Qinzhou).

This species is known only from the type gathering made in 1916.

160. *Begonia umbraculifolia* Y. Wan & B. N. Chang, Acta Phytotax. Sin. 25: 322. 1987.

伞叶秋海棠 san ye qiu hai tang

Herbs, rhizomatous. Leaves all basal; blade peltate, basally 6(or 7)-veined, tertiary veins percurrent, mostly opposite, \pm concave, spiderweblike. Inflorescences axillary, dichasial cymose. Staminate flowers: pedicel 1.5–3 cm; tepals 4, outer 2 broadly ovate, $1.6\text{--}1.9 \times 1.4\text{--}1.7$ cm, base subrounded, apex obtuse or rounded, outside hairy, inner 2 elliptic, $7\text{--}10 \times 4\text{--}6$ mm, apex obtuse; stamens numerous; anthers obovoid-oblong, apex subtruncate. Pistillate flowers: pedicel 3–6 cm; tepals 3, outer 2 suborbicular or broadly ovate, $1.5\text{--}1.8 \times 1.6\text{--}2$ cm, apex and base rounded, inner 1 elliptic; ovary ovoid-oblong, unequally 3 winged, 1-loculed with parietal placentation; styles 3, fused at base. Capsule nodding, $14\text{--}26 \times 5\text{--}8$ mm.

- Forest understories, valleys, on limestone; 200–500 m. Guangxi.

- 1a. Rhizome long creeping, internodes 2–4 cm; blade adaxially sparsely hispid; tepals pink; pedicel of pistillate flower without bracteole; ovary sparsely hirsute-villous 160a. var. *umbraculifolia*
- 1b. Rhizome stout, internodes 0.5–1 cm; blade adaxially densely shortly

hispid and setulose; tepals white; pedicel of pistillate flower with a bracteole; ovary hispid and hispidulose 160b. var. *flocculosa*

160a. *Begonia umbraculifolia* var. *umbraculifolia*

伞叶秋海棠(原变种) san ye qiu hai tang (yuan bian zhong)

Rhizome long creeping, 5–8 mm in diam.; internodes 2–4 cm. Leaves peltate; stipules lanceolate, narrowly ovate or elliptic, 1.5–2 × 0.7–1.5 cm; petiole 6–40 cm, villous to sparsely villous; blade abaxially pale green, adaxially deep green or brown-green, pale green on veins, suborbicular or broadly ovate, 6–23 × 4–16 cm, herbaceous, abaxially hispid-pilose on veins, adaxially sparsely hispid, base rounded, slightly oblique, margin remotely and shallowly unequally serrate or undulate, apex acuminate to caudate. Inflorescences axillary; peduncle 25–30 cm, very sparsely retrorse-villous; flowers pink; bracts oblong to ovate, 10–15 × 6–7 mm, margin indistinctly and shallowly denticulate, apex obtuse. Staminate flowers: pedicel 1.5–2 cm, glandular villous; tepals 4, outer 2 broadly ovate, 1.6–1.9 × 1.4–1.7 cm, outside sparsely villous, base subrounded, apex rounded, inner 2 narrow, elliptic, 7–8 × ca. 4 mm, apex obtuse; stamens numerous; filaments ca. 1.3 cm; anthers obovoid-oblong, 1.2–2 cm, apex subtruncate. Pistillate flowers: pedicel 3–4 cm, glandular villous; outer 2 tepals 1.5–1.8 × 1.6–2 cm, inner tepal ca. 8 mm; ovary ca. 10 × 8 mm, sparsely hirsute-villous. Capsule nodding, 1.4–1.6 cm, 3-winged. Fl. Oct–Nov. $2n = 30^*$.

• Forest understories, valleys, on limestone; ca. 200 m. Guangxi (Long'an).

160b. *Begonia umbraculifolia* var. *flocculosa* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 372. 2005.

簇毛伞叶秋海棠 cu mao san ye qiu hai tang

Rhizome stout, 1–2 cm in diam.; internodes 5–10 mm. Leaves all basal; petiole hirsute-villous; blade 10–21 × 7–16 cm, distinctly rugose, abaxially densely red setose and setulose on veins, adaxially densely shortly hispid and setulose. Staminate flowers: white or very slightly pinkish, outer 2 tepals abaxially densely hispid. Pistillate flowers: pedicel 4–6 cm, with 1 bracteole; ovary hispid and hispidulose. Fl. Sep–Oct. $2n = 30^*$.

• Forest understories, valleys, limestone rock faces; 200–500 m. Guangxi (Daxin).

161. *Begonia variifolia* Y. M. Shui & W. H. Chen, Acta Bot. Yunnan. 27: 372. 2005.

变异秋海棠 bian yi qiu hai tang

Herbs, rhizomatous. Rhizomes 2–3 mm in diam.; internodes 2–3 mm. Leaves basal; stipules reflexed, ovate, 5–6 × 3–4 mm; petiole 3–5 cm, densely hirsute-villous; blade ovate, 6–10 × 4–6 cm, papery, rugose, base cordate to peltate, margin serrulate and ciliate, apex acute. Inflorescences axillary, with 6–13 flowers in a dichasial cyme; peduncle 8–21 cm, hirsute-villous; bracts oblong. Staminate flowers: tepals 4, outer 2 pink, with red veins, suborbicular, inner 2 pinkish, obovate; androecium zygomorphic; stamens numerous; anthers obovoid. Pistillate flow-

ers: tepals 3, rarely 4, outer 2 pink, orbicular, glabrous; ovary coniform, villous, 3-winged, 1-loculed with parietal placentation; styles 3. Capsule nodding, ovate; subequally 3-winged; abaxial wing broadly oblong, 2–3 mm, apex subtruncate. Fl. Feb–Jun.

• Limestone hills; ca. 500 m. Guangxi (Bama).

162. *Begonia versicolor* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 546. 1939.

变色秋海棠 bian se qiu hai tang

Herbs. Rhizomes elongate, 4–6 mm in diam. Leaves basal; stipules ovate or broadly triangular, 8–9 × 5.6–8 mm, abaxially brown hairy, apex cuspidate; petiole 10–14.5(–20) cm, brown hairy; blade green or red-purple on veins or with red-purple veins on green lamina, sometimes with white spots between veins, broadly ovate, strongly asymmetric, 5–11.6 × 4–9.4 cm, densely villous, venation palmate, 5–7-veined, base strongly oblique, deeply cordate, margin densely and minutely denticulate, apex shortly acuminate or shortly caudate. Inflorescences 14–20 cm tall, sparsely brown villous; bracts broadly oblong or oblong-ovate, 5–6.8 × 1.5–2 mm, abaxially brown villous, apex obtuse or acute. Staminate flowers: pedicel ca. 7 mm; tepals 4(or 5), pink, outer 2 suborbicular, 8–9 × 7–8 mm, abaxially villous, inner 2(or 3) oblong, 4–5 × 1.5–2 mm, apex acute; stamens numerous; filaments ca. 1.5 mm; anthers obovoid-oblong, ca. 1 mm. Pistillate flowers: pedicel 1–1.4 cm; tepals 5, unequal, largest suborbicular, ca. 10 × 9.3 mm, abaxially villous, smallest broadly obovate, ca. 6.5 × 3 mm; ovary oblong, ca. 4.5 × 2.5 mm, villous, 2-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas 2-cleft, spiraled. Capsule nodding, obovoid-oblong, unequally 3-winged; abaxial wing triangular or ligulate, 1.3–1.4 × ca. 1 cm, apex obtuse; lateral wings smaller. Fl. Jun–Sep, fr. Jul. $2n = 22^*$.

• Forests, shaded moist environments on slopes or along stream banks; 1800–2100 m. SE Yunnan.

163. *Begonia villifolia* Irmscher, Notes Roy. Bot. Gard. Edinburgh 21: 43. 1951.

长毛秋海棠 chang mao qiu hai tang

Herbs, to 80 cm tall. Rhizomes poorly developed, only seen in young stage. Stems to 1.5 cm in diam., densely long hirsute. Leaves cauline; stipules oblong-ovate, to 3.7 cm, membranous, abaxially villous, apex cuspidate; petiole to 36 cm, densely long-hirsute; blade broadly ovate to ovate, rarely narrowly ovate, asymmetric, 9–34 × 7–25 cm, densely long villous, venation palmate, 6-veined, base oblique, cordate, margin densely and irregularly serrate, shallowly lobed, divided to 1/3 of leaf length; lobes 3 or 4, apex long acuminate or caudate-acuminate. Inflorescences 5–6 cm, densely villous; bracts caducous, hairy. Staminate flowers: pedicel 1–3 cm; tepals 4, white, outer 2 broadly obovate, 1.2–2.9 × 0.8–2.2 cm, abaxially villous, inner 2 obovate, 2.6–2.7 × ca. 1.7 cm; stamens ca. 400; filaments 1.1–3.5 mm, free; anthers elliptic, 1.8–3.1 mm, apex acute. Pistillate flowers: pedicel 1–2.1 cm; tepals 5, subequal, variable in shape, 0.8–2.1 × 0.6–1.7 cm, abaxially villous; ovary densely villous, 2-loculed; placentae axile, bilamellate;

styles 2, fused at base, 4.8–9 mm; stigmas 2-cleft, spiraled. Capsule nodding, ellipsoid, 9–11 × 6–7 mm, unequally 3-winged; abaxial wing elliptic to orbicular, 2–3 cm; lateral wings smaller, 4–5 mm. Fl. May–Jul, fr. Jul.

Forests or scrubby vegetation, on rocks of shaded moist slopes or along streams; (1100–)1600–1700 m. SE Yunnan [Myanmar, Vietnam].

164. *Begonia wangii* T. T. Yu, Bull. Fan Mem. Inst. Biol., n.s., 1: 126. 1948.

少瓣秋海棠 shao ban qiu hai tang

Begonia cavaleriei H. Léveillé var. *pinfaensis* H. Léveillé.

Herbs. Rhizomes elongate, to 2.5 cm in diam. Leaves basal; stipules ovate, 0.8–1.9 cm × 4–12 mm, glabrous, apex acuminate or cuspidate; petiole to 30 cm, glabrous; blade abaxially red, adaxially dark green, peltate, ovate-oblong to ovate-lanceolate, slightly asymmetric, 7–20 × 3–11 cm, ca. 2 mm thick, glabrous, venation palmate, 5–7-veined, base rounded, margin entire, apex acuminate. Inflorescences to 40 cm, glabrous; bracts ovate, 5–8 × 3–6 mm, glabrous, apex acuminate. Staminate flowers: pedicel 0.9–1.9 cm; tepals 2, pink, broadly ovate to obovate-orbicular, 1.5–1.9 × 1.2–2.3 cm, apex acute; stamens ca. 60; filaments 1–3.7 mm, fused at base; anthers obovoid, 0.8–1.7 mm, apex truncate or emarginate. Pistillate flowers: pedicel 2.5–3.6 cm; tepals 2, pink, orbicular-ovate, 1.4–2.1 × 1–2.5 cm, apex acute; ovary 3-loculed; placentae axile, bilamellate; styles 3, 5.5–8.1 mm, free; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing lunate, ca. 5 × 1.9–2 cm; lateral wings smaller, ca. 2 mm.

• Scrubby vegetation, on limestone rocks; (600–)800–1000 m. W Guangxi (Jingxi, Napo), SE Yunnan (Malipo).

165. *Begonia wenshanensis* C. M. Hu ex C. Y. Wu & T. C. Ku, Acta Phytotax. Sin. 33: 262. 1995.

文山秋海棠 wen shan qiu hai tang

Herbs, 26–35(–39) cm tall. Rhizomes poorly developed, 8–10 mm in diam. Stems subglabrous, sometimes branching. Leaves cauline; stipules caducous, ovate-lanceolate, ca. 7 mm, membranous, subglabrous, apex obtuse; petiole 2–4 cm, subglabrous; blade triangular-ovate, asymmetric, 7–12 × 4.5–7 cm, abaxially glabrous or sparsely hispidulous, adaxially sparsely hispidulous, base oblique, cordate, margin irregularly denticulate, very shallowly lobed, apex acuminate or caudate-acuminate. Inflorescences 3.5–7 cm, glabrous; bracts lanceolate, 6–8 mm, membranous. Staminate flowers: pedicel 1–1.2 cm; tepals 4, pinkish, outer 2 narrowly ovate, 1–1.3 cm, abaxially villous, inner 2 elliptic, ca. 3 × 1.5 mm; stamens numerous; filaments ca. 2 mm, fused to halfway; anthers oblong, ca. 0.8 mm. Pistillate flowers: pedicel 1–1.2 cm; tepals 3, pinkish, unequal, largest broadly ovate, ca. 10 × 9 mm, glabrous, smallest elliptic, ca. 5 × 2 mm; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3; stigmas U-shaped, slightly spiraled. Capsule pendulous, ellipsoid, 9–11 × 5–6 mm, unequally 3-winged; abaxial wing narrowly triangular or falcate, ca. 1 cm; lateral wings smaller. Fl. Jul–Aug, fr. Aug.

• Evergreen broad-leaved forests, moist environments along streams; 1400–2200 m. Yunnan (Funing, Wenshan).

166. *Begonia wilsonii* Gagnepain, Bull. Mus. Natl. Hist. Nat. 25: 281. 1919.

一点血 yi dian xie

Herbs, deciduous. Tubers compressed, 0.8–1.2(–1.5) cm in diam. Leaves usually 1(or 2); stipules caducous, ovate-lanceolate; petiole 11–19(–25) cm, subglabrous; blade sometimes purple abaxially, broadly ovate, slightly asymmetric, 12–20 × 8–18 cm, subglabrous, venation palmate, 6- or 7-veined, base oblique, shallowly cordate, margin irregularly serrulate, shallowly lobed, divided to 1/3 of leaf length; lobes 3–7(–9), apex long caudate. Inflorescences terminal, racemose at base, glabrous; peduncle 8–35(–50) cm; bracts ovate-lanceolate, ca. 5 × 2 mm, membranous, apex acuminate. Staminate flowers: pedicel 1–1.5 cm; tepals 4, pinkish, outer 2 ovate to broadly ovate, 1.1–1.2 × 1.1–1.4 cm, glabrous; inner 2 oblong-obovate, 0.8–1.2 cm × 4–7 mm; stamens 8–13; filaments fused at base, 1.7–2 mm; anthers obovoid-oblong, 1.4–2 mm, apex rounded or emarginate. Pistillate flowers: pedicel 1.8–2.2 cm; tepals 3 or 4, pinkish, outer 2 broadly oblong or suborbicular, 12–14 × 9–10 mm, inner 1 or 2 elliptic, 5–10 × 2–6 mm; ovary glabrous, 3-loculed; placentae axile, undivided; styles 3, ca. 3 mm, nearly free; stigmas U-shaped. Capsule pendulous, trigonous, clavate, 1–1.2 cm × 3–5 mm, wingless. Fl. Aug, fr. Sep.

• Forest understories, on rocks in shaded moist environments on slopes or along streams. Chongqing (Nanchuan), Sichuan (Emei Shan, Hongxi).

This species is similar to *Begonia labordei* but differs by the undivided placentae and the wingless capsule.

167. *Begonia wutaiana* C. I. Peng & Y. K. Chen, Bot. Bull. Acad. Sin. 46: 268. 2005.

雾台秋海棠 wu tai qiu hai tang

Herbs. Rhizomes poorly developed. Stems 40–70 cm tall, to 1.4 cm in diam. Leaves cauline; stipules caducous, lanceolate to ovate, 1.8–2.4 × 1.2–1.5 cm, glabrous, margin entire, apex acuminate; petiole glabrous, 5–14 cm; blade lanceolate to narrowly ovate, 9–18 × 4–7 cm, glabrous, venation palmate-pinnate, 6–9-veined, base oblique, cordate, margin irregularly serrulate, apex acuminate. Inflorescence 6–14 cm; peduncle to 11 cm; bracts caducous, narrowly ovate to ovate, 0.9–2.1 cm × 5–15 mm, thickly papery, glabrous, margin entire, apex acuminate. Staminate flowers: tepals 4, white or pinkish, outer 2 orbicular, 1.1–1.8 × 0.8–1.8 cm, inner 2 oblanceolate to narrowly obovate, 0.9–1.6 cm × 4–9 mm; stamens 41–53; filaments 2–2.8 mm; anthers narrowly oblong, 2.4–2.9 mm. Pistillate flowers: tepals 5(or 6), white or pinkish, unequal, narrowly obovate to orbicular, largest 0.9–1.6 cm × 7–15 mm, smallest 6–13 × 4–7 mm; ovary ellipsoid, locules 2; placentae axile, bilamellate; styles 2, fused at base; stigmas 2-cleft, spiraled. Capsule trigonous, unequally 3-winged; abaxial wing 1.5–2.5 × 1.5–2.3 cm; lateral wings smaller. $2n = 52^*$.

• Forests; 800–1800 m. S Taiwan.

This species is similar to *Begonia chuyunshanensis* but differs by its longer anthers and 2-loculed ovary.

168. *Begonia xanthina* J. D. Hooker, Bot. Mag. 78: t. 4683. 1852.

黄瓣秋海棠 huang ban qiu hai tang

Herbs, to 40 cm tall. Rhizomes elongate. Leaves basal; stipules caducous, ovate to narrowly triangular, margin entire, apex acuminate to cuspidate; petiole 15–23 cm, subglabrous to sparsely pilose; blade broadly ovate, asymmetric, 17–26 × 15–22 cm, abaxially subglabrous or remotely pilose, adaxially glabrous, venation palmate, base oblique, cordate, margin remotely and finely serrulate, apex acute. Inflorescences glabrous; bracts ovate, to 2.3 × 1.8 cm, glabrous, margin entire, apex acute. Staminate flowers: pedicel 1.5–2 cm; tepals 4, yellow, glabrous, outer 2 elliptic, 2.1–2.2 × 1.2–1.3 cm, inner 2 narrowly obovate, ca. 2 × 0.9–1 cm; stamens numerous; filaments fused to half-way; anthers oblong, apex acute. Pistillate flowers: tepals 5, yellow, glabrous, unequal, obovate to oblong, largest 1.5–2.2 × 1.4–1.6 cm, smallest 1.2–1.6 × 0.8–1.3 cm; ovary glabrous, 2-loculed; placentae axile, bilamellate; styles 2; stigmas 2-cleft, spiraled. Capsule nodding, unequally 3-winged; abaxial wing falcate, ca. 1.7 cm; lateral wings smaller. Fl. Sep–Oct, fr. Nov.

Forests, rocky hills by streams; ca. 800 m. SW Yunnan [NE India].

Begonia xanthina is a new distributional record reported for China by Peng et al. (Bot. Stud. 47: 92. 2006). It resembles *B. rex* but differs by the yellow tepals and the leaves, which lack long, setose hairs and the horseshoe-shaped spot.

169. *Begonia xingyiensis* T. C. Ku, Acta Phytotax. Sin. 33: 263. 1995, not *B. xinyiensis* T. C. Ku (loc. cit.).

兴义秋海棠 xing yi qiu hai tang

Herbs, deciduous. Tubers globose, 6–10 mm in diam. Leaves basal; stipules caducous, membranous; petiole 4–4.5 cm, villous; blade broadly ovate or orbicular, asymmetric, 4.5–6 cm, papery, sparsely villous, venation palmate, 7- or 8-veined, base oblique, slightly cordate, margin irregularly serrate or biserrate, apex obtuse. Inflorescences 4–8 cm tall, pilose; bracts caducous, lanceolate, 2–3 mm, membranous. Staminate flowers: pedicel 8–10 mm; tepals (3 or)4, purplish white, outer 2 broadly ovate to obovate, 8–9 × ca. 5 mm, inner 2 obovate-oblong, ca. 7 × 4 mm; stamens numerous; filaments ca. 0.8 mm, fused at base; anthers oblong, ca. 0.5 mm. Pistillate flowers: tepals 2, suborbicular, ca. 5 × 7 mm; styles 3, entirely fused. Fl. Aug.

- On rocks in valleys; ca. 1100 m. Guizhou (Xingyi).

This species is similar to *Begonia labordei* but differs by its 2-tepaled pistillate flowers.

170. *Begonia xishuiensis* T. C. Ku, Acta Phytotax. Sin. 33: 264. 1995.

习水秋海棠 xi shui qiu hai tang

Herbs, deciduous. Tubers globose, ca. 1.5 cm in diam. Leaves 1 or 2 basal, with 1 or 2 smaller leaves on inflorescence; stipules caducous, 3.6–6.7 × 5.7–8.9 mm, margin denticulate, apex acute; petiole 9–14 cm, glabrous; blade purple abaxially,

broadly ovate, slightly asymmetric, 11–16 × 8–10 cm; glabrous, venation palmate, 7-veined, base slightly oblique, shallowly cordate, margin very shallowly denticulate, shallowly lobed on upper half, divided to 1/3 of leaf length; lobes 3 or 4, apex acuminate or acute. Inflorescences terminal, 6–32 cm tall, glabrous; bracts caducous, lanceolate or ovate-lanceolate, 2–4 × 1–2 mm, membranous. Staminate flowers: pedicel ca. 0.5 mm; tepals 2, broadly ovate, 6–11 × 6–12 mm; stamens 11–16; filaments fused at base, 1.3–2.5 mm; anthers obovoid or subglobose, 0.8–1.1 mm, apex emarginate. Pistillate flowers: pedicel 1.5–3.1 cm; tepals 2, suborbicular, 7–10 × 6–12 mm; ovary glabrous, 3-loculed; placentae axile, bilamellate; styles 3, ca. 3.1 mm, fused at base; stigmas U-shaped. Capsule pendulous, unequally 3-winged; abaxial wing triangular, ca. 8 × 16 mm; lateral wings smaller, ca. 5 mm. Fl. May.

- Forests, on shaded moist rocky slopes; 700–800 m. Guizhou (Xishui).

This species is similar to *Begonia summoglabra* but differs by its herbaceous, shallowly lobed leaves.

171. *Begonia yingjiangensis* S. H. Huang, Acta Bot. Yunnan. 21: 18. 1999.

盈江秋海棠 ying jiang qiu hai tang

Herbs. Rhizomes elongate. Stems very short. Leaves mostly basal; petiole 10.5–15 cm, densely brown pubescent; blade lanceolate, symmetric, 22–29.5 × 5–7.5 cm, abaxially densely brown pubescent, adaxially glabrous, base cuneate, margin subentire or slightly repand, apex acuminate or slightly caudate. Inflorescences 17–20 cm tall, brown pubescent; peduncle 3–9 cm. Staminate flowers: pedicel ca. 1 cm; tepals 4, pink, outer 2 broadly elliptic, ca. 10 × 6 mm; stamens numerous; filaments free, 1–2 mm; anthers oblong, ca. 1.5 mm. Pistillate flowers not seen. Capsule nodding, ellipsoid, ca. 8 × 6 mm, brown pubescent, 2-loculed; placentae axile, bilamellate, unequally 3-winged; abaxial wing ligulate, ca. 5 mm; lateral wings triangular, ca. 3 mm. Fl. Aug.

- About 1100 m. Yunnan (Yingjiang).

This species is known only by the type gathering made in 1980.

172. *Begonia yui* Irmscher, Notes Roy. Bot. Gard. Edinburgh 21: 36. 1951.

宿苞秋海棠 su bao qiu hai tang

Herbs, deciduous. Tubers globose, 1.5–1.8 cm in diam. Leaves 1(or 2), basal or sometimes 1 cauline; stipules caducous, ovate, membranous, margin ciliate; petiole 4–12 cm, pilose or subglabrous; blade ovate or broadly ovate, slightly asymmetric, 6–11(–14) × 5–7.5 cm, abaxially pilose, adaxially densely villous, venation palmate, 5- or 6-veined, base slightly oblique, shallowly cordate, margin minutely serrulate, apex shortly caudate. Inflorescences terminal, racemose at base, 13–20 cm tall, subglabrous; bracts ovate or oblong, 4–7 × 2–3.5 mm, membranous, glabrous, margin finely glandular serrate near apex, apex obtuse or rounded. Staminate flowers: pedicel ca. 1 cm; tepals 4, pink, outer 2 broadly ovate, ca. 8 × 6.5 mm, abaxially villous, inner 2 elliptic, ca. 5.5 × 3 mm; stamens numerous; filaments

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1–1.5 mm; anthers obovoid or oblong, 0.7–0.8 mm, apex emarginate. Pistillate flowers: pedicel 1.5–2 cm; bracteoles 2; tepals 5, variable in shape; ovary villous, 3-loculed; placentae axile, bilamellate; styles 3, fused at base; stigmas U-shaped. Capsule pendulous, obovoid, 7–8 × 5–6 mm, unequally 3-winged; abaxial wing triangular; lateral wings smaller. Fl. Aug–Sep, fr. Sep.

• On rocks in moist environments by stream banks in valleys; (1500–)2500–2900 m. Yunnan (Lincang, Zhenkang).

This species is similar to *Begonia labordei* but differs by its pistillate flowers with 2 bracteoles.

173. *Begonia zhengyiana* Y. M. Shui, Acta Phytotax. Sin. 40: 374. 2002.

吴氏秋海棠 wu shi qiu hai tang

Herbs rhizomatous. Rhizomes creeping, villous; internodes 5–10 mm. Leaves all basal; stipules broadly triangular, 3–4 × 3–4 mm, glabrous, apex acute; petiole 2–6 cm, villous;

blade reniform to suborbicular, 4–6 × 7–11 cm, thickly herbaceous, abaxially villous on veins, adaxially glabrous, basally 3–5-veined, tertiary veins randomly reticulate, obscure, base cordate or shallowly so, margin irregularly repand, denticulate and ciliate, without a distinct apex. Inflorescence axillary, flowers 4 or 5 in dichasial cymes; peduncle 4–6.5 cm, glabrous; tepals pink. Staminate flowers: pedicel 6–7 mm, subglabrous; tepals 4, outer 2 larger, suborbicular, 7–8 × 5–6 mm, glabrous, apex rounded, inner 2 small, 7–8 × 2.5–3 mm; stamens numerous; filaments 0.6–0.7 mm, fused below into a short column; anthers oblong, 0.7–0.9 × 0.4–0.6 mm. Pistillate flowers: pedicel ca. 4 mm; tepals 3, outer 2 orbicular, 3–4 × 3–4 mm, inner 1 elliptic, 2.5–3 × ca. 1 mm; ovary 1-loculed with parietal placentae on upper part; styles 3, 1.4–1.5 mm. Capsule nodding, ellipsoid, equally 3-winged, wings triangular, 3.5–4.5 × 0.9–1.2 mm, apex obtuse. Fl. Aug–Oct.

• On limestone rock faces in seasonal rain forests or in limestone tropical seasonal forests; 500–600 m. SE Yunnan (Hekou, Maguan).

Uncertain Species

Begonia tessaricarpa C. B. Clarke in J. D. Hooker, Fl. Brit. India 2: 636. 1879.

陀螺果秋海棠 tuo luo guo qiu hai tang

Begonia tessaricarpa is a very rare and little-known species, represented only by the type gathering from Assam in

NE India. It is possible that its holotype represents a stunted plant of *B. roxburghii* A. Candolle. However, it is difficult to be certain because several important characteristics are lacking on this specimen (Mark C. Tebbitt, pers. comm., 2005). Shui et al. (Bot. Bull. Acad. Sin. 43: 322. 2002) cited, without description, a gathering from Mèdog in SE Xizang as *B. tessaricarpa*.

Infrageneric classification of *Begonia*

Gu Cuizhi (谷粹芝 Ku Tsue-chih)

The following infrageneric classification of *Begonia* in China is here proposed by the first author of this family treatment (Gu).

Key to sections

- 1a. Ovary 1-loculed, placentae parietal, bilamellate 1. *B. sect. Coelocentrum*
- 1b. Ovary 2–7-loculed, placentae axile, unilamellate or bilamellate.
 - 2a. Ovary 3-loculed.
 - 3a. Placentae bilamellate 2. *B. sect. Begonia*
 - 3b. Placentae unilamellate 3. *B. sect. Reichenheimia*
 - 2b. Ovary 2- or 4–7-loculed.
 - 4a. Ovary 4–7-loculed.
 - 5a. Ovary 4-loculed, placentae bilamellate 4. *B. sect. Sphenanthera*
 - 5b. Ovary 5–7-loculed, placentae unilamellate 5. *B. sect. Pleiothece*
 - 4b. Ovary 2-loculed.
 - 6a. Placentae bilamellate 6. *B. sect. Platycentrum*
 - 6b. Placentae unilamellate 7. *B. sect. Monolobium*

1. *Begonia* sect. *Coelocentrum* Irmscher, Mitt. Inst. Allg. Bot. Hamburg 10: 553. 1939.

侧膜胎座组 ce mo tai zuo zu

Pistil composed of 3 carpels; ovary 1-loculed; placentae parietal, bilamellate, lamellae branched or unbranched.

1. *B. setulosopeltata* C. Y. Wu
2. *B. asteropyrifolia* Y. M. Shui & W. H. Chen
3. *B. umbraculifolia* Y. Wan & B. N. Chang
4. *B. ornithophylla* Irmscher
5. *B. pseudodryadis* C. Y. Wu
6. *B. lanternaria* Irmscher

7. *B. guangxiensis* C. Y. Wu
8. *B. austroguangxiensis* Y. M. Shui & W. H. Chen
9. *B. crystallina* Y. M. Shui & W. H. Chen
10. *B. debaoensis* C. I. Peng et al.
11. *B. huangii* Y. M. Shui & W. H. Chen
12. *B. liuyanii* C. I. Peng et al.

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|---|---|
| 13. <i>B. longistyla</i> Y. M. Shui & W. H. Chen | 25. <i>B. cirrosa</i> L. B. Smith & Wasshausen |
| 14. <i>B. luochengensis</i> S. M. Ku et al. | 26. <i>B. morsei</i> Irmscher |
| 15. <i>B. ningmingensis</i> D. Fang et al. | 27. <i>B. porteri</i> H. Léveillé & Vaniot |
| 16. <i>B. obliquifolia</i> S. H. Huang & Y. M. Shui | 28. <i>B. zhengyiana</i> Y. M. Shui |
| 17. <i>B. platycarpa</i> Y. M. Shui & W. H. Chen | 29. <i>B. biflora</i> T. C. Ku |
| 18. <i>B. variifolia</i> Y. M. Shui & W. H. Chen | 30. <i>B. daxinensis</i> T. C. Ku |
| 19. <i>B. pseudodaxinensis</i> S. M. Ku et al. | 31. <i>B. luzhaiensis</i> T. C. Ku |
| 20. <i>B. pseudoleprosa</i> C. I Peng et al. | 32. <i>B. rhynchocarpa</i> Y. M. Shui & W. H. Chen |
| 21. <i>B. retinervia</i> D. Fang et al. | 33. <i>B. auritistipula</i> Y. M. Shui & W. H. Chen |
| 22. <i>B. picturata</i> Yan Liu et al. | 34. <i>B. curvicarpa</i> S. M. Ku et al. |
| 23. <i>B. semiparietalis</i> Yan Liu et al. | 35. <i>B. fangii</i> Y. M. Shui & C. I Peng |
| 24. <i>B. masoniana</i> Irmscher ex Ziesenhenné | |

2. *Begonia* sect. *Begonia*

秋海棠组 qiu hai tang zu

Pistil composed of 3 carpels; ovary 3-loculed; placentae axile, bilamellate, lamellae occasionally branched.

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| 36. <i>B. leprosa</i> Hance | 65. <i>B. malipoensis</i> S. H. Huang & Y. M. Shui |
| 37. <i>B. longicarpa</i> K. Y. Guan & D. K. Tian | 66. <i>B. morifolia</i> T. T. Yu |
| 38. <i>B. longifolia</i> Blume | 67. <i>B. alveolata</i> T. T. Yu |
| 39. <i>B. ceratocarpa</i> S. H. Huang & Y. M. Shui | 68. <i>B. jingxiensis</i> D. Fang & Y. G. Wei |
| 40. <i>B. josephii</i> A. Candolle | 69. <i>B. rongjiangensis</i> T. C. Ku |
| 41. <i>B. peltatifolia</i> H. L. Li | 70. <i>B. sinovietnamica</i> C. Y. Wu |
| 42. <i>B. pulvinifera</i> C. I Peng & Yan Liu | 71. <i>B. setifolia</i> Irmscher |
| 43. <i>B. cavaleriei</i> H. Léveillé | 72. <i>B. picta</i> Smith |
| 44. <i>B. wangii</i> T. T. Yu | 73. <i>B. yui</i> Irmscher |
| 45. <i>B. hainanensis</i> Chun & F. Chun | 74. <i>B. dentatobracteata</i> C. Y. Wu |
| 46. <i>B. taiwaniana</i> Hayata | 75. <i>B. obsolescens</i> Irmscher |
| 47. <i>B. sublongipes</i> Y. M. Shui | 76. <i>B. xingyiensis</i> T. C. Ku |
| 48. <i>B. coptidimontana</i> C. Y. Wu | 77. <i>B. xishuiensis</i> T. C. Ku |
| 49. <i>B. chitoensis</i> T. S. Liu & M. J. Lai | 78. <i>B. asperifolia</i> Irmscher |
| 50. <i>B. lukuana</i> Y. C. Liu & C. H. Ou | 79. <i>B. acutepala</i> K. Y. Guan & D. K. Tian |
| 51. <i>B. chuyunshanensis</i> C. I Peng & Y. K. Chen | 80. <i>B. rotundilimba</i> S. H. Huang & Y. M. Shui |
| 52. <i>B. hymenocarpa</i> C. Y. Wu | 81. <i>B. fenicis</i> Merrill |
| 53. <i>B. ×buimontana</i> Y. Yamamoto | 82. <i>B. labordei</i> H. Léveillé |
| 54. <i>B. modestiflora</i> Kurz | 83. <i>B. discreta</i> Craib |
| 55. <i>B. ravenii</i> C. I Peng & Y. K. Chen | 84. <i>B. fimbriatipala</i> Hance |
| 56. <i>B. grandis</i> Dryander | 85. <i>B. fimbriatocarpa</i> Y. M. Shui & W. H. Chen |
| 57. <i>B. wenshanensis</i> C. M. Hu ex C. Y. Wu & T. C. Ku | 86. <i>B. suboblata</i> D. Fang & D. H. Qin |
| 58. <i>B. clavicaulis</i> Irmscher | 87. <i>B. muliensis</i> T. T. Yu |
| 59. <i>B. guishanensis</i> S. H. Huang & Y. M. Shui | 88. <i>B. taliensis</i> Gagnepain |
| 60. <i>B. glechomifolia</i> C. M. Hu ex C. Y. Wu & T. C. Ku | 89. <i>B. arborea</i> Y. M. Shui |
| 61. <i>B. cehengensis</i> T. C. Ku | 90. <i>B. miranda</i> Irmscher |
| 62. <i>B. ruboides</i> C. M. Hu ex C. Y. Wu & T. C. Ku | 91. <i>B. lithophila</i> C. Y. Wu |
| 63. <i>B. gulinqingensis</i> S. H. Huang & Y. M. Shui | 92. <i>B. imitans</i> Irmscher |
| 64. <i>B. fordii</i> Irmscher | |

3. *Begonia* sect. *Reichenheimia* (Klotzsch) A. Candolle, Prodr. 15(1): 385. 1864.

单座组 dan zuo zu

Reichenheimia Klotzsch, Abh. Königl. Akad. Wiss. Berlin 1854: 133, 174. 1855.

Pistil composed of 3 carpels; ovary 3-loculed; placentae axile, unilamellate, lamellae usually unbranched.

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| 93. <i>B. cylindrica</i> D. R. Liang & X. X. Chen | 97. <i>B. parvula</i> H. Léveillé & Vaniot |
| 94. <i>B. wilsonii</i> Gagnepain | 98. <i>B. chingii</i> Irmscher |
| 95. <i>B. summoglabra</i> T. T. Yu | 99. <i>B. filiformis</i> Irmscher |
| 96. <i>B. henryi</i> Hemsley | 100. <i>B. tengchiana</i> C. I Peng & Y. K. Chen |

4. *Begonia* sect. *Sphenanthera* A. Candolle, Ann. Sci. Nat., Bot., sér. 4, 11: 118. 1859.

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四室组 si shi zu

Pistil composed of 4 carpels; ovary 4-loculed; placentae axile, bilamellate, lamellae occasionally branched.

101. *B. acetosella* Craib
 102. *B. lancangensis* S. H. Huang
 103. *B. silletensis* (A. Candolle) C. B. Clarke subsp.
mengyangensis Tebbitt & K. Y. Guan
 104. *B. handelii* Irmscher

5. *Begonia* sect. **Pleiothece** T. C. Ku, Fl. Reipubl. Popularis Sin. 52(1): [401]. 1999.

多室组 duo shi zu

Pistil composed of 5–7 carpels; ovary 5–7-loculed; placentae axile, unilamellate, lamellae occasionally branched.

B. balansana Gagnepain (Chinese records require confirmation; see comment under genus heading in above treatment)

6. *Begonia* sect. **Platycentrum** A. Candolle, Ann. Sci. Nat., Bot., sér. 4, 11: 134. 1859.

二室组 er shi zu

Platycentrum Klotzsch, Abh. Königl. Akad. Wiss. Berlin 1854: 136, 243. 1855, not Naudin (1852).

Pistil composed of 2 carpels; ovary 2-loculed; placentae axile, bilamellate, lamellae occasionally branched.

105. *B. sinofloribunda* Dorr
 106. *B. yingjiangensis* S. H. Huang
 107. *B. peii* C. Y. Wu
 108. *B. psilophylla* Irmscher
 109. *B. howii* Merrill & Chun
 110. *B. discrepans* Irmscher
 111. *B. rockii* Irmscher
 112. *B. hatacoa* Buchanan-Hamilton ex D. Don
 113. *B. ×taipeiensis* C. I Peng
 114. *B. polytricha* C. Y. Wu
 115. *B. pinglinensis* C. I Peng
 116. *B. hongkongensis* F. W. Xing
 117. *B. hekouensis* S. H. Huang
 118. *B. nantoensis* M. J. Lai & N. J. Chung
 119. *B. gungshanensis* C. Y. Wu
 120. *B. formosana* (Hayata) Masamune
 121. *B. emeiensis* C. M. Hu ex C. Y. Wu & T. C. Ku
 122. *B. villifolia* Irmscher
 123. *B. purpureofolia* S. H. Huang & Y. M. Shui
 124. *B. cathayana* Hemsley
 125. *B. palmata* D. Don
 126. *B. flaviflora* H. Hara
 127. *B. baviensis* Gagnepain
 128. *B. truncatiloba* Irmscher
 129. *B. edulis* H. Léveillé
 130. *B. reflexisquamosa* C. Y. Wu
 131. *B. lacerata* Irmscher
 132. *B. mengtzeana* Irmscher
 133. *B. lipingensis* Irmscher
 134. *B. digyna* Irmscher
 135. *B. macrotoma* Irmscher
 136. *B. sikkimensis* A. Candolle
 137. *B. longialata* K. Y. Guan & D. K. Tian
 138. *B. repenticaulis* Irmscher
 139. *B. dryadis* Irmscher
 140. *B. daweishanensis* S. H. Huang & Y. M. Shui
 141. *B. limprichtii* Irmscher
 142. *B. duclouxii* Gagnepain
 143. *B. subhowii* S. H. Huang
 144. *B. bouffordii* C. I Peng
 145. *B. rubinea* H. Z. Li & H. Ma
 146. *B. austrotaiwanensis* Y. K. Chen & C. I Peng
 147. *B. dielsiana* E. Pritzel
 148. *B. versicolor* Irmscher
 149. *B. xanthina* J. D. Hooker
 150. *B. megalophyllaria* C. Y. Wu
 151. *B. longanensis* C. Y. Wu
 152. *B. tsoongii* C. Y. Wu
 153. *B. chishuiensis* T. C. Ku
 154. *B. brevisetulosus* C. Y. Wu
 155. *B. gagnepainiana* Irmscher
 156. *B. oreodoxa* Chun & F. Chun ex C. Y. Wu & T. C. Ku
 157. *B. augustinei* Hemsley
 158. *B. smithiana* T. T. Yu
 159. *B. manhaoensis* S. H. Huang & Y. M. Shui
 160. *B. crocea* C. I Peng
 161. *B. rex* Putzeys
 162. *B. forrestii* Irmscher
 163. *B. cucurbitifolia* C. Y. Wu
 164. *B. paucilobata* C. Y. Wu
 165. *B. algaia* L. B. Smith & Wasshausen
 166. *B. laminariae* Irmscher
 167. *B. scitifolia* Irmscher
 168. *B. circumlobata* Hance
 169. *B. pedatifida* H. Léveillé
 170. *B. rubropunctata* S. H. Huang & Y. M. Shui
 171. *B. hemsleyana* J. D. Hooker
 172. *B. coptidifolia* H. G. Ye et al.

7. *Begonia* sect. **Monolobium** T. C. Ku, **sect. nov.**

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Type: *Begonia wutaiana* C. I Peng & Y. K. Chen.

Ovarium 2-loculare, *placentae axiales* 1-segmentatae in quoque loculo.

Pistil composed of 2 carpels; ovary 2-loculed; placentae axile, unilamellate, lamellae occasionally branched.

173. *B. wutaiana* C. I Peng & Y. K. Chen

BEGONIACEAE