

A revision of *Clematis* sect. *Aspidanthera* s.l. (*Ranunculaceae*)(Continued)

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Subsect. 4. **Aristatae** (Prantl) W. T. Wang in Acta Phytotax. Sin. 38:509. 2000. — Sect. *Flammula* DC. 11. *Aristatae* Prantl in Bot. Jahrb. 9:260. 1888; H. Eichler in Bibl. Bot. 124:32. 1958; Tamura in Sci. Rep. Osaka Univ. 16(2):33. 1967. — Sect. *Aristatae* (Prantl) Brandenb., *Meclatis* in *Clematis* 38. 2000. Lectotype: *C. aristata* R. Br. ex Ker Gawler.

Sect. *Clematis* subsect. *Papuasicae* H. Eichler in l. c. 35; Tamura in l. c. — Sect. *Aspidanthera* subsect. *Papuasicae* (H. Eichler) M. Johnson, *Clematis* 494. 1997; Grey-Wils., *Clematis* 63. 2000. — Sect. *Papuasicae* (H. Eichler) Brandenb., *Meclatis* in *Clematis* 38. 2000. Type: *C. papuasica* Merr. & Perry.

Sect. *Aspidanthera* subsect. *Aspidanthera* M. Johnson, l. c. 493; Grey-Wils., l. c. 58. Type: *C. aristata* R. Br. ex Ker Gawler.

Leaves ternate, rarely simple, pinnate, or biternate. Flowering hornotinous branches arising alone from axillary buds of old branch. Inflorescences arising from leaf axils of hornotinous branch. Sepals 4(-5), valvate, oblong to linear, outside on margin velutinous. Stamens slightly or two to three times shorter than sepals; anthers oblong or narrowly oblong, rarely linear (*C. aristata*); connectives at apex projected. Staminodes 2-14(-18).

Sixteen species in three series, distributed in Australia, S & E Indonesia, Fiji, New Caledonia, Papua New Guinea, Solomon Islands, and Timor Island.

Key to species and varieties

1. Connective projections usually globose-conic, 0.1-0.2(-0.3) mm long.
 2. Leaves simple 44. **C. dubia**
 2. Leaves ternate (in *C. clemensiae* sometimes simple).
 3. Leaflets thickly coriaceous, oblong-elliptic, narrowly ovate or lanceolate, abaxially strongly reticulate 45. **C. cruttwellii**
 3. Leaflets papery or coriaceous, usually ovate or broadly ovate, not reticulate.
 4. Branches and abaxial surfaces of leaflets brownish-velutinous 48. **C. archboldiana**
 4. Branches and abaxial surfaces of leaflets usually glabrous or subglabrous, rarely puberulous or densely puberulous.
 5. Branches puberulous; leaflets abaxially densely puberulous 46. **C. tuansis**
 5. Branches subglabrous or glabrous, or only on nodes sparsely puberulous, elsewhere glabrous.
 6. Sepals outside glabrous, only on margin velutinous 47. **C. clemensiae**
 6. Sepals outside puberulous or densely puberulous.
 7. Leaflets coriaceous; connective projections 0.1 mm long 49. **C. novocaledoniensis**

Received: 17 June 2003

Supported by the National Natural Science Foundation of China (Grant Nos. 30070059, 39570051) and the Special Project for Taxonomic and Floristic Researches from the Chinese Academy of Sciences (国家自然科学基金资助项目(30070059, 39570051); 中国科学院生物分类区系特别支持项目).

7. Leaflets papery ; connective projections up to 0.2 mm long 50. **C. pickeringii**
1. Connective projections thinly columnar or subulate , (0.3 – 0.5 – 4.5 mm long.
8. Woody vines.
9. Leaves ternate.
10. Leaflets abaxially strongly reticulate , coriaceous or thickly coriaceous.
11. Branches subglabrous ; leaflets coriaceous , abaxially glabrous ; sepals 9 – 15 mm long ; stamens 5.5 – 7.5 mm long 52. **C. phanerophlebia**
11. Branches densely puberulous ; leaflets thickly coriaceous , abaxially densely puberulous ; sepals shorter , 6 – 8.5 mm long ; stamens shorter , 2 – 4 mm long 53. **C. sclerophylla**
10. Leaflets abaxially not strongly reticulate , mostly papery , sometimes coriaceous.
12. Branches densely brownish-puberulous ; ovary glabrous 55. **C. stenantha**
12. Branches glabrous , subglabrous , or sparsely white-puberulous ; ovary hairy.
13. Connective projections 0.15 – 0.5 mm long 51. **C. glycinoides**
14. Leaflets margin entire , undivided.
15. Leaflets ovate or broadly lanceolate 51a. var. **glycinoides**
15. Leaflets orbicular-ovate 51b. var. **floribunda**
14. Leaflets margin denticulate.
16. Leaflets ovate , undivided 51c. var. **dentata**
16. Leaflets linear-lanceolate or lanceolate , 3-lobed , or undivided 51d. var. **longifoliola**
13. Connective projections longer , 1 – 4.5 mm long (in *C. tenuimarginata* , the stamens are unknown , and its staminodes are known , having connective projections 1 mm long ; in *C. aristata* var. *occidentalis* , the connective projections are sometimes less than 1 mm long).
17. Sepals slightly longer than stamens ; species occurring in E Indonesia , Papua New Guinea , and Solomon Islands.
18. Peduncles of pistillate cymes 3 – 9 cm long ; staminodes ca. 8 mm long with connective projections 1 mm long 54. **C. tenuimarginata**
18. Peduncles of pistillate cymes up to 21 cm long ; staminodes longer , 10 – 12 mm long , with connective projections 2.5 – 3 mm long 56. **C. papuasica**
17. Sepals two or more than two times longer than stamens ; species endemic to Australia..... 57. **C. aristata**
19. Anthers 2 – 3.5 mm long.
20. Leaflets margin dentate or denticulate.
21. Leaflets coriaceous , ovate or narrowly ovate , dentate ; anthers narrowly oblong or linear 57a. var. **aristata**
21. Leaflets chartaceous , lanceolate or narrowly triangular , denticulate ; anthers narrowly oblong 57c. var. **browniana**
20. Leaflets margin entire (in var. *occidentalis* occasionally sparsely denticulate) , chartaceous.
22. Leaflets at apex acute , glabrous ; anthers linear ; connective projections 2 mm long..... 57b. var. **integrifolia**
22. Leaflets at apex attenuate , abaxially below puberulous ; anthers narrowly oblong or linear ; connective projections smaller , 0.4 – 1.2 mm long 57d. var. **occidentalis**
19. Anthers smaller , 1 – 1.5 mm long , oblong or narrowly oblong ; connective projections 3 – 3.5 mm long 57e. var. **longiseta**
9. Leaves pinnate , 5-foliolate , sometimes ternate or biternate 58. **C. clitorioides**
8. Low suffrutescent plants , with erect or procumbent stems 59. **C. gentianoides**
23. Leaves simple.
24. Stem erect 59a. var. **gentianoides**
24. Stem procumbent 59b. var. **procumbens**
23. Leaves mostly ternate , upper ones simple 59c. var. **tasmanica**

Ser. 1. **Pickeringianae** W. T. Wang in Acta Phytotax. Sin. 38 : 510. 2000. Type : *C. pickeringii* Gray.

Woody vines. Leaves ternate, rarely simple. Sepals 4. Connective projection globose-conic, 0.1–0.2 mm long, rarely with a very short apiculum.

Seven species, distributed in Norfolk Island and the northern part of Australia, S & E Indonesia, Fiji, New Caledonia, Papua New Guinea, Solomon Islands, and Timor Island.

44. *Clematis dubia* (Endl.) P. S. Green in Kew Bull. 45 : 245. 1993. — *Ripogonum dubium* Endl., Prodr. Fl. Norfolk. 30. 1833. Type : Australia. Norfolk Island, 1804, Bauer s. n. (holotype, Wt, destroyed); same locality, 1835, Cunningham 17 (neotype, K! — P. S. Green, 1993).

Clematis cocculifolia Cunn. in Ann. Nat. Hist. ser. 1, 4 : 260. 1840; Prantl in Bot. Jahrb. 9 : 260. 1888; Domin in Bibl. Bot. 89 : 664. 1925; M. Johnson, Klematis 499. 1997. — *C. aristata* R. Br. ex Ker Gawler ssp. *cocculifolia* (Cunn.) Kuntze in Verh. Bot. Ver. Brand. 26 : 156. 1885. — *C. aristata* var. *cocculifolia* (Cunn.) Grey-Wils., Clematis 61. 2000. Type : Australia. Norfolk Island, 1835, Cunningham 17, 38, 152, 623 (paratypes, K!).

C. indivisa auct. non Willd. : Heward in J. Bot. 1 : 124. 1842.

Fig. 21 : F–I

Woody vine. Branches slender, subterete, shallowly 8–12-sulcate, only on nodes sparsely appressed-puberulous, elsewhere glabrous. Leaves simple; leaf blades papery, broadly or orbicularly ovate or ovate, 2.8–8 × 2.8–5.8 cm, apex slightly obtuse, emarginate or retuse, base cordate, subcordate, or rounded, margin entire, on both surfaces glabrous, basal veins abaxially slightly or nearly flat; petioles 2–7.5 cm long, glabrous. Staminate cymes axillary and terminal, 3–many-flowered; peduncles 1–2.5 cm long, glabrous; bracts narrowly triangular, ca. 1.5 mm long. Staminate flower ca. 1 cm in diam.; pedicel 5–8 mm long, puberulous; sepals 4, linear, 5.5–7.5 × 1–1.2 mm, apex acute, inside glabrous, outside sparsely puberulous, margin velutinous; stamens 3–7 mm long, glabrous; anthers oblong, 0.8–1.1 mm long; connective projections globose-conic, ca. 0.2 mm long. Pistillate cymes axillary and terminal, 7–many-flowered; peduncles 3.8–5.5 cm long; bracts petiolate, foliaceous, 0.5–3.5 cm long. Pistillate flower ca. 1.8 cm in diam.; pedicel 5–10 mm long; sepals 4, linear, ca. 9 × 1 mm, inside glabrous, outside sparsely puberulous, margin velutinous; staminodes ca. 8, ca. 9 mm long; ovaries puberulous; styles ca. 9 mm long, densely villous. Achenes compressed, broadly lanceolate or long elliptic, ca. 4.5 × 1.5 mm, puberulous, narrowly rimmed; persistent styles 3.5–6.5 cm long, plumose. Fl. May.

Australia (Norfolk Island). On slopes or on mountain top.

Additional specimens examined.

Australia. Norfolk Island, Mt. Batutrack, Christian s. n. (K); Bridle Track, Ralston 17 (GH); Mt. Pitt, Uhe 1176 (K); between Mt. Pitt and Mt. Butes, Ralston 16 (GH).

45. *Clematis cruttwellii* H. Eichler ex W. T. Wang in Acta Phytotax. Sin. 38 : 320, fig. 2 : 8–13. 2000; M. Johnson, Klematis 505. 1997, sine diagn. latin. Type : Papua New Guinea. Mt. Gangun, 1600 m, 1961-04-17, Cruttwell 1172 (holotype, K!); same locality, 1955-11-12, Cruttwell 658 (paratype, K!); Mt. Patana, 2100 m, 1962-08-12, Cruttwell 1375 (paratype, K!).

Fig. 22 : D–I

Woody vine. Branches slender, shallowly 6–8-sulcate, only on nodes sparsely puberulous, elsewhere glabrous. Leaves ternate; leaflets thickly coriaceous, oblong-elliptic, lanceolate-oblong, lanceolate, or narrowly ovate, 3–7.5 × 1.3–3.7 cm, apex acuminate to attenuate, base obtuse, broadly cuneate, or rounded, margin usually near apex few-denticulate, on both surfaces only near base very sparsely pilose or glabrous, adaxially reticulate, abaxially strongly reticulate, basal veins abaxially strongly prominent; petioles 3–6.3 cm long, glabrous or sparsely puberulous. Staminate

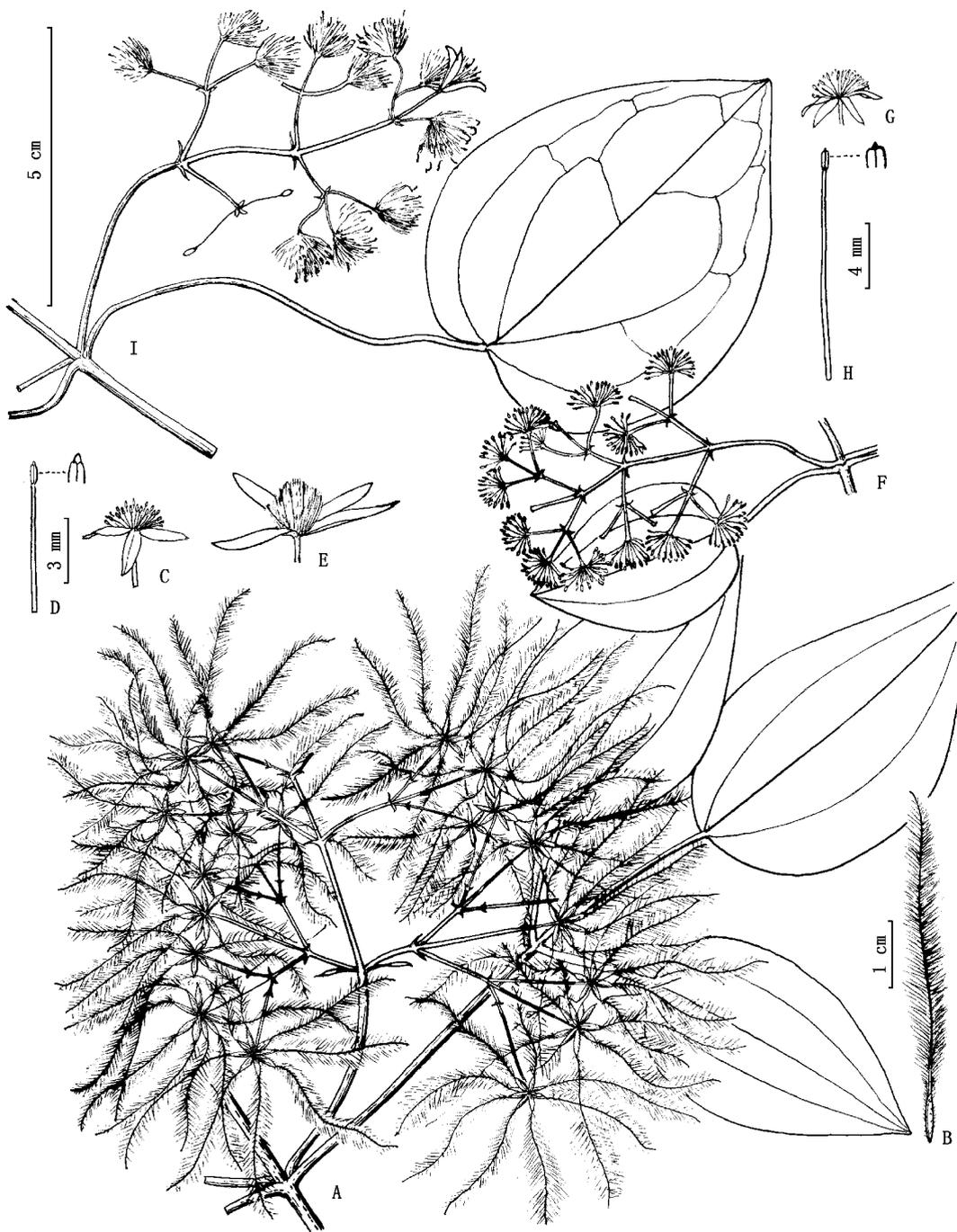


Fig. 21. A - E, *Clematis pickeringii* Gray. A, fructing branch; B, achene (from Beccari s. n.); C, staminate flower (from Saunders 15); E, pistillate flower (from Cruttwell 1155). F - I, *C. dubia* (Endl.) P. S. Green. F, staminate flowering branch; G, staminate flower; H, stamen; I, pistillate flowering branch (from Cunningham 38).

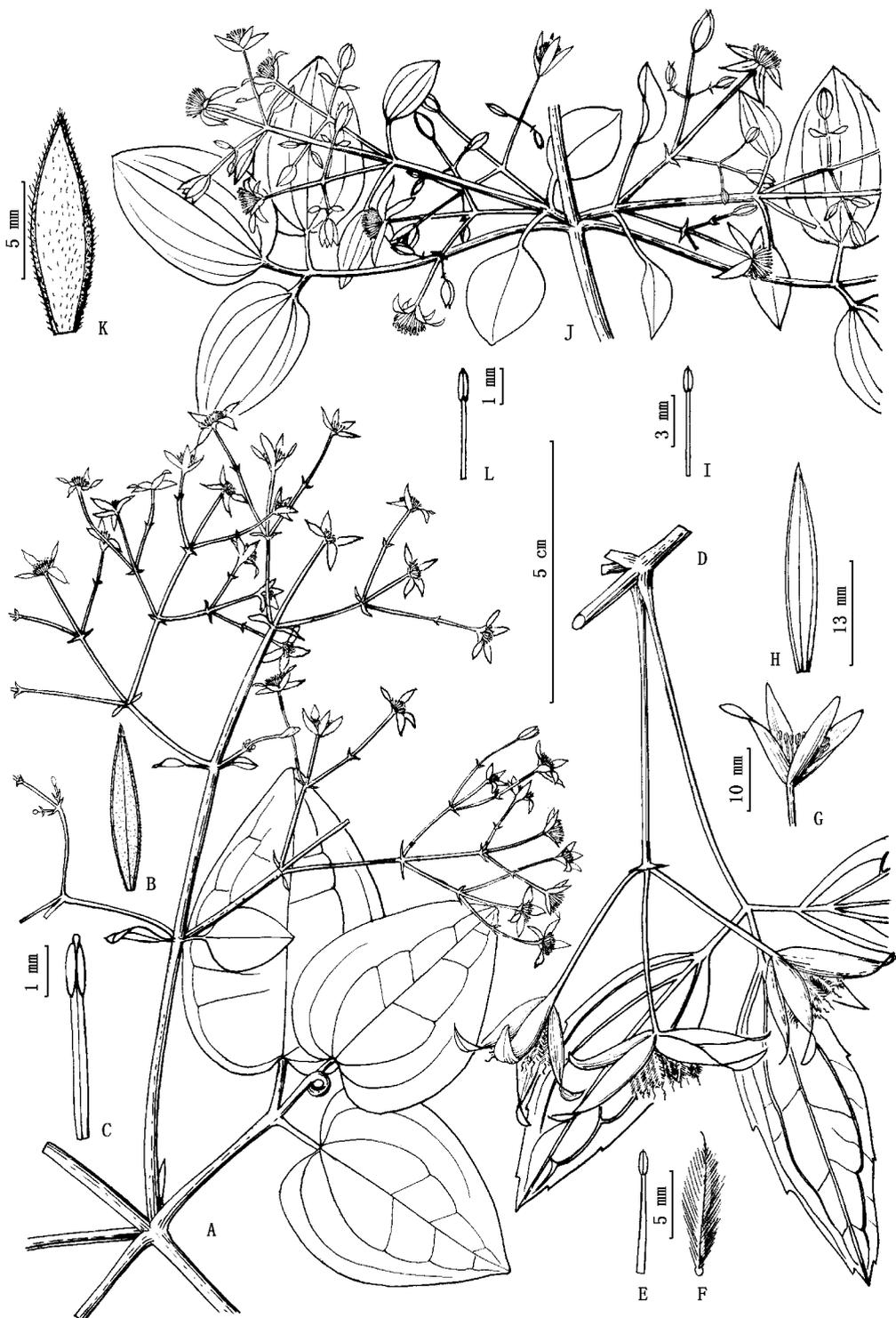


Fig. 22. A - C, *Clematis novocaledoniensis* W. T. Wang. A, staminate flowering branch; B, sepal, outside; C, stamen (from McKee 41961). D - I, *C. cruttwellii* H. Eichler ex W. T. Wang. D, pistillate flowering branch; E, staminode; F, carpel (from Cruttwell 1172); G, staminate flower; H, sepal, outside; I, stamen (from Cruttwell 658). J - L, *C. tuansis* H. Eichler ex W. T. Wang. J, staminate flowering branch; K, sepal, outside; L, stamen (from Cruttwell 659).

cymes axillary, 3–4-flowered; peduncles 4–10 cm long, puberulous; bracts subulate, ca. 1.8 mm long. Staminate flower ca. 3 cm in diam.; pedicel 1.3–2.4 cm long, densely puberulous; sepals 4, white, narrowly oblong, ca. 15 × 5 mm, apex slightly obtuse, inside glabrous, outside sparsely puberulous, margin velutinous; stamens 4–10 mm long, glabrous; anthers narrowly oblong, 1.2–1.5 mm long, apex minutely apiculate or obtuse. Pistillate cymes axillary, 3-flowered; peduncles ca. 5.5 cm long, with pedicels densely puberulous; bracts subulate, 4 mm long. Pistillate flower 4–5 cm in diam.; pedicel 2.7–3 cm long; sepals 4, white, tinged with pink, lanceolate-linear, 2.2–2.8 cm × 5 mm, apex attenuate, inside glabrous, outside sparsely puberulous, margin velutinous; staminodes ca. 2, 10–11 mm long; ovaries densely puberulous; styles 10–11 mm long, densely villous. Fl. Aug. – Apr.

Papua New Guinea. In forests or along edges of mossy forests; 1600–2100 m.

In the genus *Clematis* only two species, *C. cruttwellii* and *C. sclerophylla* (see below), both endemic in the rain forests of Papua New Guinea, have the thickest leaflets, which are thickly coriaceous in texture and abaxially strongly reticulate. In ser. *Pickeringianae*, *C. cruttwellii* is characterized by its thickest leaflets as just mentioned on the one hand, and by its anther connective at apex projected into a very short apiculum scarcely 0.1 mm long on the other hand.

46. *Clematis tuaensis* H. Eichler ex W. T. Wang in Acta Phytotax. Sin. 38:317, fig. 1:7–9. 2000. Type: Papua New Guinea. Tua MBD, 1955-11-12, Cruttwell 659 (holotype, K!); same locality, without flowers and fruits, 1961-04-16, Cruttwell 1176 (paratype, K!).

Fig. 22 : J – L

Woody vine. Branches nearly terete, shallowly 8–10-sulcate, puberulous. Leaves ternate; leaflets thickly papery, ovate, 1.5–3.7 × 0.8–2.6 cm, apex slightly obtuse, base subcordate, truncate, or rounded, margin entire, adaxially appressed-puberulous, abaxially densely appressed-puberulous, basal veins on both surfaces flat; petioles 3–5 cm long, puberulous. Staminate cymes axillary, 7–many-flowered, often panicle-like; peduncles 4–10 cm long, puberulous; bracts petiolate, leaflet-like, 1.5–2 cm long. Staminate flower ca. 1.6 cm in diam.; pedicel 9–20 mm long, with cyme rachis densely puberulous; sepals 4, white, linear-lanceolate, 8–9 × 2–2.5 mm, apex attenuate, inside glabrous, outside densely puberulous, margin velutinous; stamens 2.8–4.5 mm long, glabrous; anthers narrowly oblong, 1–1.2 mm long; connective projections obtusely and broadly conic, ca. 0.2 mm long. Fl. Nov.

Papua New Guinea. Scrambling over bushes near stream; 1200 m.

47. *Clematis clemensiae* H. Eichler in Bibl. Bot. 124:35, t. 2. 1958; M. Johnson, *Clematis* 505. 1997; Grey-Wils., *Clematis* 64. 2000. Type: Papua New Guinea. Morobe, 4000–6000 ft., 1938-06, Clemens 83556 (holotype, GH!).

Woody vine. Branches terete, shallowly 14–16-sulcate, glabrous. Leaves ternate, sometimes simple; leaflets chartaceous, ovate, 6.5–12 × 3.7–8 cm, apex acuminate or acute, base rounded or abruptly contracted and decurrent, margin entire, seldom 1-dentate, on both surfaces glabrous or adaxially near base sparsely puberulous, basal veins abaxially prominent or slightly prominent; petioles 3.5–12 cm long. Staminate cymes axillary and terminal, many-flowered, panicle-like; peduncles 0.2–2 cm long, glabrescent; bracts small, triangular. Staminate flower ca. 2 cm in diam.; pedicel 8–16 mm long, puberulous; sepals 4, white, lanceolate-oblong, 8–13 × 2–4.2 mm, apex acute, inside glabrous, outside also glabrous, margin velutinous; stamens 4.5–10 mm long, glabrous; anthers oblong, 1–1.5 mm long; connective projections nearly globose, ca. 0.1 mm long. Pistillate cymes similar to staminate ones. Pistillate flower also similar to staminate flower; sepals lanceolate or narrowly ovate, 10–12 × 2–5 mm; staminodes ca. 18, ca. 7 mm long;

ovaries puberulous ; styles 4 – 6 mm long , densely villous . Achenes compressed , oblong , ca. 3×1 mm , densely puberulous , narrowly rimmed ; persistent styles 3 – 4 cm long , plumose . Fl. Apr. – Sept.

Papua New Guinea . In forests or along forest edges ; 100 – 1300 m .

Additional specimens examined .

Papua New Guinea. Central Prov. , Kanis 1033 (K) ; Goroka , Hoogland & Pullen 5275 (BM , K) ; Kubandu , Philipson 3279 (K) ; Milne Bay District , Kanis 1084 (K) ; Morobe , Millar 14582 (K , L) , Streimann 39085 (L) ; Northern Prov. , Gillison 22293 (K) ; Radarada , Cruttwell 994 (K) ; Vogelkop , Peninsula , Vink 15323 (K) ; Western Highlands , Clunie & Katik 63497 (E , K) , Womersley & Millar 8523 (K) .

48. *Clematis archboldiana* Merr. & Perry in J. Arn. Arb. 24 : 36. 1943 ; H. Eichler in Bibl. Bot. 124 : 37 , fig. 8. 1958 ; M. Johnson , *Clematis* 504. 1997 ; Grey-Wils. , *Clematis* 63. 2000 . Type : Indonesia . Irian Jaya : Bele River , 18 km northwest of Habbema , 1938-11 , Brass 11366 (holotype , GH ! ; isotypes , BM ! , L !) .

Woody vine . Branches terete , shallowly 10-sulcate , with petioles , peduncles and pedicels brown-velutinous . Leaves ternate , upper ones often simple ; leaflets coriaceous , elliptic-ovate , elliptic , or ovate , $2.5 - 6 \times 1.2 - 3.7$ cm , apex obtuse , base rounded , margin entire , adaxially more or less densely brownish-puberulous , glabrescent , abaxially densely brownish-velutinous , triplinerved , midrib abaxially prominent ; petioles 1.5 – 5 cm long . Staminate cymes and flowers unknown . Pistillate cymes axillary and terminal , 2 arising from a leaf axil , 5 – many-flowered , panicle-like ; peduncles ca. 1 cm long ; bracts linear , ca. 4 mm long . Pistillate flower ca. 1 cm in diam. ; pedicel 0.5 – 1.2 cm long ; sepals 4 , lanceolate , ca. 5×2 mm , apex slightly acute , inside glabrous , outside brownish-velutinous ; staminodes ca. 5 mm long , glabrous , sterile anthers ca. 0.5 mm long , connective projections subglobose , 0.25 – 0.3 mm long ; carpels ca. 25 . Achenes compressed , subfusiform , ca. $2 - 2.5 \times 1$ mm , puberulous ; persistent styles 1.5 – 2.3 cm long , brownish-plumose . Fl. Nov.

Indonesia (Irian Jaya) . In rain forests ; 2000 m .

49. *Clematis novocaledoniensis* W. T. Wang in Acta Phytotax. Sin. 38 : 510 , fig. 3 : 1 – 4. 2000 . Type : New Caledonia . On hills near Dotio , 1871-09 , M. Balansa 3620 (holotype , P !) ; Mt. Koniambo , 1956-03-31 , Mckee 4262 (paratype , K !) ; Mt. Kaala , 1984-06-04 , Mckee 41961 (paratype , US !) .

C. aristata R. Br. ex Ker Gawler ssp. *pickeringii* (Gray) Kuntze in Verh. Bot. Ver. Brand. 26 : 156. 1885 , p. p. quoad specim. a Balansa lectum .

Fig. 22 : A – C

Woody vine . Branches terete , shallowly 8 – 12-sulcate , glabrous or only on nodes sparsely puberulous . Leaves ternate ; leaflets coriaceous , cordate or ovate , $3 - 7 \times 2.8 - 5$ cm , apex acute or acuminate , base cordate or subcordate , margin entire and slightly thickened , on both surfaces glabrous or abaxially near base with a few short hairs and glabrescent , basal veins abaxially slightly prominent or nearly flat , veinlets inconspicuous ; petioles 2 – 6 cm long . Staminate cymes axillary and terminal , many-flowered , panicle-like ; peduncles 2 – 6.5 cm long , sparsely puberulous ; bracts petiolate , leaflet-like . Staminate flower 1.2 – 1.5 cm in diam. ; pedicel 5 – 15 mm long , densely puberulous ; sepals 4 , white , narrowly lanceolate-oblong , $6 - 7 \times 1.2 - 1.8$ mm , apex acute , inside glabrous , outside puberulous , margin velutinous ; stamens 2 – 6 mm long , glabrous ; anthers narrowly oblong , 0.8 – 1 mm long ; connective projections globose-conic , ca. 0.1 mm long . Pistillate cymes similar to staminate ones . Achenes dark red , compressed , lanceolate-oblong ,

4 – 4.5 × 2 – 2.2 mm, puberulous, longitudinally 2-veined; persistent styles ca. 4 cm long, plumose. Fl. Mar. – Sept.

New Caledonia. In thickets or bushes; 400 – 800 m.

Additional specimen examined.

New Caledonia. Mt. Kaala, Bernard 12545 (G).

50. Clematis pickeringii Gray, Bot. U.S. Explor. Exped. 1 : 1. 1854; Drake, Ill. Fl. Ins. Mar. Pac. 103. 1889; Turrill in J. Linn. Soc. Bot. 43 : 16. 1915; Domin in Bibl. Bot. 89 : 663. 1925; A. C. Smith in J. Arn. Arb. 36 : 277. 1955; H. Eichler in Bibl. Bot. 124 : 22. 1958; Backer & Bakh., Fl. Java 1 : 144. 1963; Parham, Pl. Fiji Isl. 217. 1964; A. C. Smith, Fl. Viti. Nov. 2 : 153. 1981; M. Johnson, Klematis 502. 1997; Grey-Wils., Clematis 62. 2000; Paczk. & Chapman, W. Austral. Fl. 506. 2000. — *C. aristata* R. Br. ex Ker Gawler ssp. *pickeringii* (Gray) Kuntze in Verh. Bot. Ver. Brand. 26 : 156. 1885, p. p. excl. specim. a Balansa lectum. Type : Fiji. Ovalau, Pickering & Brackenridge s. n. (holotype, US!).

C. glycinoides DC. var. ?*submutica* Benth., Fl. Austral. 1 : 7. 1863; Ewart, Fl. Victoria 508. 1930; Stanley & Ross, Fl. SE Queensland 1 : 170. 1983. Type : Australia. Brisbane River, Mueller s. n. (syntype, K!).

C. aristata R. Br. ex Ker Gawler ssp. *glycinoides* (DC.) Kuntze in Verh. Bot. Ver. Brand. 26 : 155. 1885, p. p.

C. aristata a. *glycinoides* Kuntze in Verh. Zool.-Bot. Ges. Wien 37 (Abh.) : 50. 1887, non *C. glycinoides* DC.; Hall. in Ann. Jard. Bot. Buitenz. 14 : 271. 1887, p. p.

C. acuminata auct. non DC. : Malm. in Repert. Sp. Nov. 34 : 273. 1934.

C. glycinoides auct. non DC. : Merr. & Perry in J. Arn. Arb. 24 : 34. 1943; Guill., Fl. Analyt. Synop. Nouv.-Caled. 118. 1948.

Fig. 21 : A – E (see p. 100)

Woody vine. Branches terete, shallowly 10 – 14-sulcate, subglabrous. Leaves ternate; leaflets papery, ovate, orbicular-ovate, or ovate-elliptic, 3.5 – 10 × 2.4 – 10 cm, apex acute, obtuse, or acuminate, rarely emarginate, base rounded, subtruncate, or subcordate, margin entire, on both surfaces sparsely puberulous or glabrous, basal veins abaxially slightly prominent; petioles 5 – 11 cm long. Staminate panicle axillary and terminal, large, many-flowered; peduncles robust; bracts foliaceous or leaf-like. Staminate flower 1.2 – 2 cm in diam.; pedicel 8 – 20 mm long, densely puberulous; sepals 4, white, narrowly oblong-lanceolate or narrowly oblanceolate, 6 – 10 × 1.1 – 3 mm, inside glabrous, outside sparsely puberulous, margin velutinous; stamens 2 – 7 mm long, glabrous; anthers oblong, 0.8 – 1.5 mm long; connective projections subglobose or conic, 0.1 – 0.2 mm long. Pistillate panicles smaller than staminate ones, 9 – many-flowered. Pistillate flower 1.5 – 3 cm in diam.; pedicel 1.6 – 3.6 cm long, puberulous; sepals 4, white, narrowly oblong-lanceolate, 7 – 15 × 1.5 – 3 mm, inside glabrous, outside sparsely puberulous, margin velutinous; staminodes 8 – 16, 6.5 – 10 mm long; ovaries densely puberulous; styles 6 – 9 mm long, densely villous. Achenes compressed, narrowly lanceolate or fusiform, sometimes slightly arcuate, (4 –) 4.5 – (– 7) × 1.2 – 1.5 (– 2) mm, puberulous, rarely glabrous, on each side longitudinally 3-costate; persistent styles 3.5 – 6 cm long, plumose. Fl. Mar. – Aug.

NW & NE Australia, Fiji, Indonesia (E Java, Bali, Lombok, Sumba, Flores, S Celebes, Buru, Ceram), New Caledonia, SE Papua New Guinea, Solomon Islands, and Timor Island. From coast to montane regions, in forests or bushes; 20 – 1000 m.

Additional specimens examined.

Australia. Queensland : Dalrymple Heights, Clemens s. n. (G, S, US); Atherton

Tableland , Schodde 3291 (GH). Without precise locality , Dietrich s. n (US), Statter s. n. (BM).

Fiji. Mba , Parks 20660 (LE); Ovalau , Mt. Ndelaiovalau , A. C. Smith 7566 (K , P); Vanua Levu , A. C. Smith 6653 (K , LE , P , S); Viti Levu , Greenwood 1166 , Parks 20660 , A. C. Smith 4383 (LE , P).

Indonesia. Babber Island , Riedel s. n. (K); Celebes , Beccari s. n. (K), Kjellberg 1671 (S); Tanimbar Island , Pleyte 24 (K).

New Caledonia. Dioigue , Pancher s. n. (LE); Dumhea Valley , Mackee 2586 (P); Fonwary , Bernier 744 (P); Haut Tchamba , Mackee 21994 (P); Mt. Do , Mackee 32949 (P); Mt. Dogny , Bernard 10024 (G , P); Mt. Kaala , Daniker 1698 (P , S); Mt. Koniambo , Mackee 16785 (P); Mt. Rembai , McPherson 6543 (LE); Mt. Taom , Veillon 4841 (P); Noumea , Balansa 1675a (P); Port de France , Cuming 15 (G), Saunders 15 (K).

Papua New Guinea. Kanosia , Carr 11485 (BM , K); Kirikirikoma , Cruttwell 1153 (K); Menapi , Cruttwell 991 , 1154 , 1155 , 1156 (K); Tarara , Brass 8423 (BM).

Timor Island. Without precise locality , Teysmann 1 (K , US).

Ser. 2. **Aristatae** W. T. Wang in Acta Phytotax. Sin. 38 : 510. 2000. Type : *C. aristata* R. Br. ex Ker Gawler.

Woody vine. Leaves ternate , rarely pinnate or biternate. Sepals 4. Connective projections thinly columnar , clavate , or subulate , 0.3 – 4.5 mm long.

Eight species , widespread in Australia , E Indonesia , Papua New Guinea , and Solomon Islands.

51. *Clematis glycinoides* DC. , Syst. 1 : 145. 1818 ; et Prodr. 1 : 5. 1824 ; Benth. , Fl. Austral. 1 : 7. 1863 ; F. M. Bailey , Queensl. Fl. 1 : 5. 1899 ; Domin in Bibl. Bot. 89 : 663. 1925 ; Ewart. , Fl. Victoria 508. 1930 ; Stanley & Ross , Fl. SE Queensl. 1 : 169. 1983 ; Briggs & Makinson in Harden , Fl. New S. Wales 1 : 158. 1990 ; Walsh. in Walsh. & Entwisle , Fl. Victoria 3 : 38. 1996 ; M. Johnson , Klematis 500. 1997 ; Grey-Wils. , Clematis 62. 2000. — *C. aristata* R. Br. ex Ker Gawler ssp. *glycinoides* (DC.) Kuntze in Verh. Bot. Ver. Brand. 26 : 155. 1885. — *C. glycinoides* var. *normalis* Domin in l. c. Type : Australia. Port Jackson , collector name and number unknown (holotype , BM !).

C. stenosepala DC. , Syst. 1 : 147. 1818 ; et Prodr. 1 : 5. 1824. Type : Australia. Port Jackson , R. Brown s. n. (holotype , G ! ; isotype , BM !).

C. stenopetala R. Br. ex DC. , ll. cc. , pro syn.

This species consists of four varieties distributed in E Australia with one variety extending to New Caledonia.

51a. var. *glycinoides* Fig. 23 : C , D

Woody vine. Branches shallowly 8 – 12-sulcate , only on nodes puberulous , elsewhere glabrous , rarely sparsely puberulous. Leaves ternate ; leaflets papery , ovate , narrowly ovate , or broadly lanceolate , 3 – 10 × 1.5 – 5 cm , apex acute , base rounded or subcordate , margin entire , on both surfaces glabrous , rarely very sparsely puberulous , basal veins flat or slightly prominent ; petioles 4 – 9 cm long. Staminate cymes axillary and terminal , 9 – many-flowered , usually panicle-like ; peduncles 2 – 8 cm long ; bracts small , linear or foliaceous. Staminate flower 1 – 2 (– 3.8) cm in diam. ; pedicel 3 – 15 (– 19) mm long , densely puberulous ; sepals 4 , white , narrowly oblong , 6 – 10 (– 18) × 1.2 – 2.8 (– 4) mm , apex acute or obtuse , inside glabrous , outside puberulous , margin subvelutinous ; stamens 3 – 9 mm long , glabrous ; anthers oblong or narrowly oblong , 1 – 2 mm long ; connective projections subterete , 0.15 – 0.5 mm long. Pistillate cymes

similar to staminate ones. Pistillate flower \AA (– 4) cm in diam. ; pedicel 6 – 10(– 20) mm long , usually densely puberulous ; sepals 4 , narrowly oblong , 10 – 16(– 24 – 17) \times 2 – 2.5 (– 3.8) mm , inside glabrous , outside puberulous , margin subvelutinous ; staminodes 7 – 12 , 6 – 10 mm long ; ovaries puberulous ; styles 7 – 9 mm long , densely villous . Achenes compressed , ovate , ca. 2.5 \times 1.2 mm , puberulous ; persistent styles 3 – 4 cm long , plumose . Fl. Aug. – Dec .

Australia(New South Wales , Queensland , Victoria). In forests or along forest edges ; 400 – 1000 m .

Additional specimens examined.

Australia. New South Wales : Adams Lookout , Evans 2530(K) ; Babers Creek , Rumsey s. n.(G) ; Bobbin Head , Constable 18782(K) ; Bisaster Bay , Constable 30124(K) ; Botany Bay , Camfield s. n.(P) ; Byron Bay , Boorman s. n.(G , P) ; Central Tablelands , Davles 1631(MO) ; Gibraltar Range , H. Eichler 24054(MO) ; Malladula , Rodway 2232(K) ; Nerriga , Constable 56094(GH , K) ; Newport , Hotchkiss 393(US) ; Port Jackson , Camfield 18784(K , MO) ; Salisbury , Story 6602(K) ; Southern Tablelands , Evans 2659(K , US) ; Warburton , Giovanni 59(K) ; Warialda , Boorman s. n.(US). **Queensland** : Atherton Tableland , Kajewski 1138(K) ; Blackbutt , Henderson 289(K) ; Mt. Black , Hoogland 8527(GH , K) ; Crows Nest , Pedley 287(K) ; Inniosail , Michael 166(GH) ; Ioorumba Range , Longman s. n.(K) ; Mt. Glorious , Nicolson 1379(US) ; Mt. Tibrogargan , Blake 21009(K , MO) ; Texa , Boorman s. n.(G) ; Yarraman , Clemens s. n.(P , US).

51b. var. floribunda Domin in Bibl. Bot. 89 : 663. 1925. Type : Australia. Queensland : banks of the Brisbane River , 1824-10 , Cunningham s. n.(holotype , K !).

? *C. glycinoides* auct. non DC. : Guill. , Fl. Nouv.-Caledon. 118. 1948.

Leaflets orbicular-ovate , margin entire .

E Australia and New Caledonia .

Additional specimens examined.

Australia. Lord Howe Island(in the east of Australia) , Gillvary 727(K).

New Caledonia. Dumbea Valley , Mackee 2586(P , US).

51c. var. dentata Domin in Bibl. Bot. 89 : 663. 1925. Type : Australia. Port Jackson , 1802-05 , R. Brown 4857(lectotype , K ! , designated here) ; Cote orientale , 1844 – 1846 , M. Verrfaux. s. n.(syntypes , K ! , US !).

Fig. 23 : H

Leaflets ovate , margin sparsely denticulate .

Australia(E New South Wales).

51d. var. longifoliola W. T. Wang , var. nov. Type : Australia. New South Wales : south bank of Nepean River near Douglas Park , fl. cream white , 1977-09-21 , Haegi 1448(holotype , here designated , K !).

Fig. 23 : E – G

A var. *glycinoides* differt foliis lineari-lanceolatis vel lanceolatis margine sparse denticulatis vel dentatis indivisis vel saepe supra basin 3-lobatis , lobis lateralibus multo brevioribus quam lobo mediano .

Leaflets linear-lanceolate or lanceolate , margin sparsely denticulate or dentate , above base often 3-lobed(lateral lobes much shorter than central lobe) , or undivided .

Australia(E New South Wales). In bushes or forests by river .

52. Clematis phanerophlebia Merr. & Perry in J. Arn. Arb. 24 : 35. 1943 ; H. Eichler in Bibl. Bot. 124 : 36. 1958 ; Royen , Alp. Fl. New Guinea 3 : 1290 , fig. 411. 1982 ; M. Johnson ,



Fig. 23. A, B, *Clematis gentianoides* var. *gentianoides* DC. A, staminate plant; B, stamens (from Lancaster s. n.). C, D, *C. glycinoides* DC. var. *glycinoides*. C, staminate flowering branch; D, stamens (from Evans 2659). E - G, *C. glycinoides* var. *longifoliola* W. T. Wang. E, leaf; F, staminate flower; G, stamen (from Haegi 1448). H. *C. glycinoides* var. *dentata* Domin (from Verreaux s. n.).

Clematis 507. 1997 ; Grey-Wils. , *Clematis* 64. 2000. Type : Indonesia. Irian Jaya : Bele River , 18 km northeast of Habbema , 2300 m , 1938-11 , Brass 11235 (holotype , GH ! ; isotype , BM !).

C. pickeringii Gray var. *novoguineensis* Merr. & Perry in J. Arn. Arb. 29 : 154. 1948. Type : Papua New Guinea. Morobe : Yunzaing , 4493 ft. , 1936-09-11 , Clemens 4148 (holotype , GH ! ; isotype , G !).

C. perspicuineris Merr. & Perry in J. Arn. Arb. 29 : 155. 1948. Type : Papua New Guinea. Morobe , 5800 ft. , 1936-11-29 , Clemens 4447 (holotype , GH !).

Fig. 24 : L – N

Woody vine , more or less turning black when drying. Branches shallowly 8 – 10-sulcate , subglabrous. Leaves ternate , upper ones sometimes simple ; leaflets coriaceous , elliptic-ovate , oblong , or ovate , 4 – 10(– 14) × 1.8 – 5(– 7) cm , apex acuminate , base rounded , subtruncate , or broadly cuneate , margin entire , rarely 2 – 5-dentate per side , adaxially on basal veins sparsely pilose , glabrescent , reticulate , abaxially glabrous , strongly reticulate ; petioles 2 – 11(– 16) cm long. Staminate panicles axillary , ca. 30 cm long , many-flowered ; peduncles ca. 5 cm long ; bracts subulate , ca. 4 mm long. Staminate flower 1.2 – 1.4 cm in diam. ; pedicel 5 – 11 mm long , densely puberulous ; sepals 4 , white , narrowly oblong , 6 – 8.5 × 1.2 – 2 mm , apex obtuse , inside glabrous , outside puberulous , on margin velutinous ; stamens 5.5 – 7 mm long , glabrous ; anthers narrowly oblong or oblong , (0.75 –) 1.5 – 2 mm long ; connective projections 0.3 – 0.5 mm long. Pistillate panicles smaller than staminate ones , 12 – 20 cm long ; peduncles 2.5 – 5.6 cm long ; bracts subulate , ca. 4 mm long , or ovate , up to 4 cm long. Pistillate flower 1 – 1.4 cm in diam. ; pedicel 7 – 18 mm long ; sepals 4 , white , linear-lanceolate , 9 – 15 × 1.4 – 3 mm , inside glabrous , outside puberulous , margin velutinous ; staminodes ca. 4 , 6 – 7 mm long ; ovaries puberulous ; styles 5 – 6 mm long , densely villous. Achenes compressed , subfusiform , 2 – 3 × 0.8 – 1.2 mm , densely puberulous ; persistent styles 2.2 – 3.2 cm long , plumose. Fl. Jul. – Oct.

E Indonesia (Irian Jaya) and Papua New Guinea. In forests or bushes ; 600 – 2500 m.

Additional specimens examined.

Indonesia. Irian Jaya : Kurime , Milliken 1556 (K).

Papua New Guinea. Eastern Highlands , Royen 11299 (US) , 11518 (K , US) , Streimann & Kairo 45263 (K) ; Morobe , Hoogland 9274 (K) , Sayers 19968 (K) , Webster & Hildreth 15227 (K) , Womersley 14061 , Womersley & Sleumer 13490 (K) ; Moresby , Croft & Lelean 34615 (K) ; Mt. Garutum , Cruttwell 1011 (K) ; Southern Highlands , Schodde 1863 (K) ; Western Highlands , Bowers 779 , Flenley 2622 , Pullen 185 (K).

53. *Clematis sclerophylla* W. T. Wang in Acta Phytotax. Sin. 38 : 320 , fig. 2 : 1 – 7. 2000. Type : Papua New Guinea. Souther Highland District : near Tage , Lake Kutubo , 810 m , 1961-09-18 , Schodde 2164 (holotype , K !) ; Amanab : Bewani Mts. , 1970-03-30 , Sands 1213 (paratype , K !) ; Morobe : Edie Creek Road , 1969-11-26 , Streimann 44457 (paratype , K !) ; West Sepik District : Bewani Mts. , 1970-03-13 , Sands 1039 (paratype , K !). Indonesia. Irian Jaya : Biak , 10 m , 1961-07-04 , Vink 10602 (paratype , K !).

C. papuasica Merr. & Perry var. *pubescens* Merr. & Perry in J. Arn. Arb. 22 : 154. 1948. Type : Papua New Guinea. Morobe : Matap , 1940-06 , Clemens 40979 (holotype , GH !).

Fig. 24 : A – F

Woody vine. Branches nearly terete , shallowly 10 – 12-sulcate , usually densely puberulous. Leaves ternate ; leaflets thickly coriaceous , elliptic , ovate , or broadly ovate , rarely long elliptic or narrowly ovate , 5 – 9.5 × 2.5 – 6 cm , apex acuminate , rarely long acuminate , base rounded , margin entire , adaxially at first densely appressed-puberulous , afterwards glabrescent , abaxially

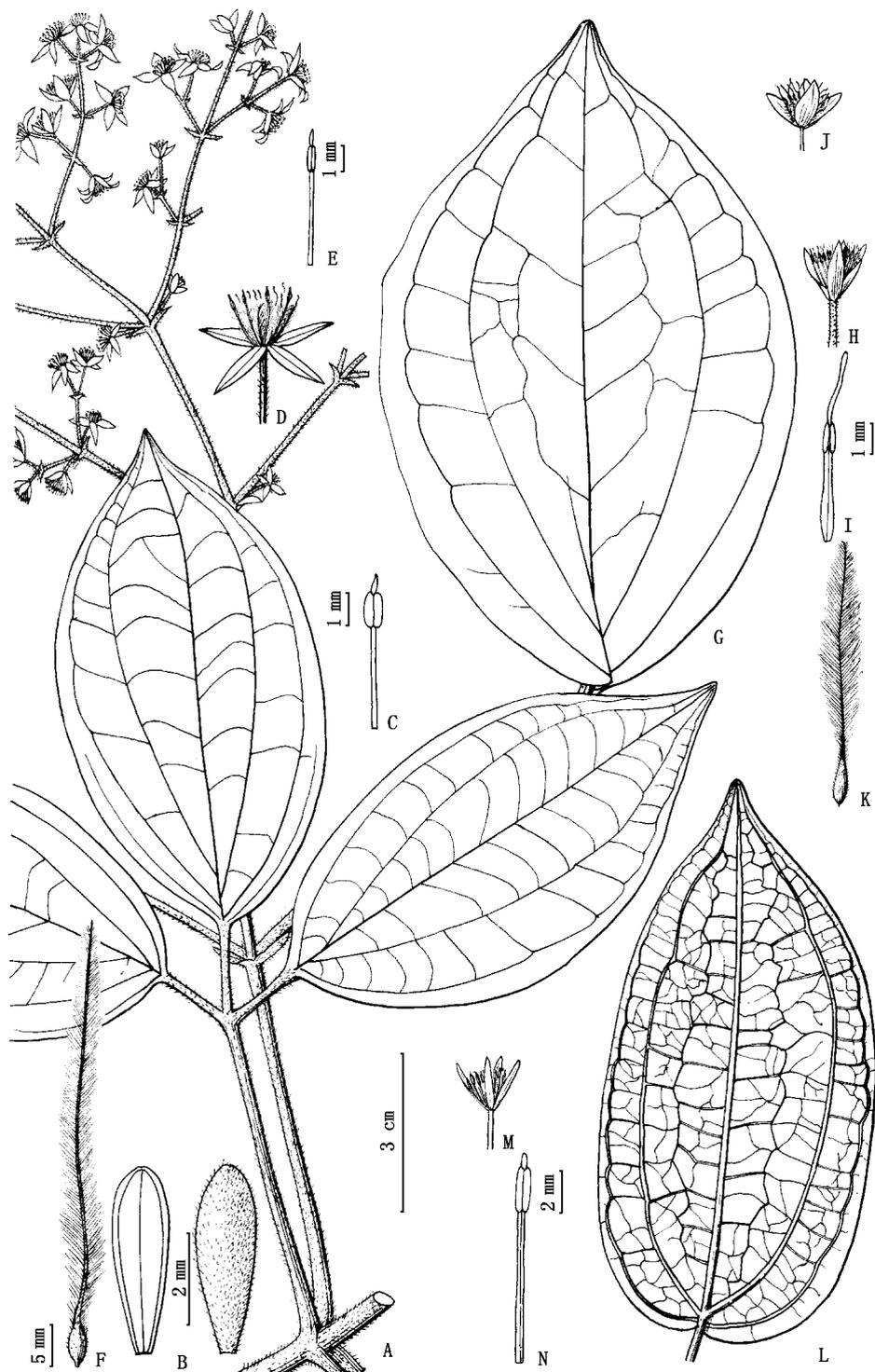


Fig. 24. A - F, *Clematis sclerophylla* W. T. Wang. A, staminate flowering branch; B, sepals; C, stamen (from Schodde 2164); D, pistillate flower; E, staminode (from Sands 1039); F, achene (from Vink BW12062). G - K, *C. papuasica* Merr. & Perry. G, leaflet; H, staminate flower; I, stamen (Royen & Sleumer 6577); J, pistillate flower; K, achene (from Brass 23719). L - N, *C. phanerophlebia* Merr. & Perry. L, leaflet; M, staminate flower; N, stamen (from Mersley & Sleumer 13490).

densely puberulous and reticulate, basal veins abaxially strongly prominent; petioles 3–8 cm long. Axillary staminate panicles up to 30 cm long, many-flowered; peduncles ca. 7 cm long, with rachis and pedicels yellowish-velutinous; bracts subulate, ca. 8 mm long. Staminate flower ca. 8 mm in diam.; pedicel 2–4 mm long; sepals 4, white, narrowly oblong or obovate-oblong, $3.5-4.8 \times 1-1.8$ mm, apex truncate, sometimes emarginate, inside glabrous, 3-veined, outside densely puberulous, margin velutinous; stamens 2–4 mm long, glabrous; anthers oblong-elliptic, 0.8–1 mm long; connective projections shortly subulate, ca. 0.5 mm long. Pistillate panicles similar to staminate ones. Pistillate flower 1.2–1.6 cm in diam.; pedicel 3–12 mm long; sepals 4, white, narrowly oblong or linear, $6-8.5 \times 1-2$ mm, apex obtuse, inside glabrous, 3-veined, outside puberulous, margin velutinous; staminodes ca. 3, 6.5–10 mm long; ovaries puberulous; styles 4–6 mm long, densely villous. Achenes compressed, narrowly elliptic or narrowly rhombic-obovate, $2.2-2.8 \times 1-1.2$ mm, puberulous; persistent styles 2–4.5 cm long, plumose. Fl. Sept. – Mar.

Indonesia (Irian Jaya) and Papua New Guinea. In forests or by river; 10–810 m.

Additional specimen examined.

Papua New Guinea. Morobe, Clemens 1098 (G).

54. *Clematis tenuimarginata* H. Eichler in *Bibl. Bot.* 128: 38, t. 2. 1958; M. Johnson, *Klematis* 509. 1997; Grey-Wils., *Clematis* 65. 2000. Type: Indonesia. Celebes: Malili, between Takolekadju and Tawi Baru, 1938-10-30, Eyma 4163 (holotype, L!; isotypes, GH!, K!); Ceram Island, Eyma 2239 (paratype, K!).

Woody vine. Branches shallowly ca. 10-sulcate, very sparsely puberulous or glabrous. Leaves ternate; leaflets papery to coriaceous, oblong or oblong-ovate, $8-13.5 \times 3-5.7$ cm, apex acuminate or long acuminate, base broadly cuneate or rounded, margin entire, on both surfaces glabrous or abaxially sparsely appressed-puberulous, basal veins abaxially slightly prominent; petioles 7–11.5 cm long. Staminate panicles and flowers unknown. Pistillate panicles axillary, many-flowered; peduncles 3–9 cm long, puberulous; bracts triangular, ca. 4 mm long. Pistillate flower ca. 2 cm in diam.; pedicel 1–2 cm long, densely brownish-puberulous; sepals 4, white, narrowly oblong or linear-lanceolate, $10-12 \times 1.5-3$ mm, apex slightly acute, inside glabrous, outside brownish-puberulous, margin velutinous; staminodes 6–8, ca. 8 mm long, sterile anthers 0.5–0.7 mm long, connective projections thinly clavate, ca. 1 mm long; ovaries densely puberulous; styles ca. 6 mm long, densely brownish-villous. Achenes slightly compressed, narrowly ellipsoid, $4-4.5 \times 1.5-1.7$ mm, puberulous, narrowly rimmed; persistent styles 5.5–6 cm long, plumose. Fl. Oct. – Nov.

E Indonesia.

55. *Clematis stanthera* H. Eichler in *Bibl. Bot.* 124: 42, t. 3. 1958; M. Johnson, *Klematis* 508. 1997; Grey-Wils., *Clematis* 65. 2000. Type: Indonesia. Celebes: Manado, 1895-03-13, Kooders 16526 β (holotype, BO; isotype, L!).

C. aristata R. Br. ex Ker Gawler β *glycinoides* auct. non (DC.) Kuntze: *Koord.*, *Versl. Bot. Dienstr. Minahasa* 327. 1898.

C. aristata α *glycinoides* auct. non (DC.) Kuntze: *Hall. in Bull. Herb. Boiss. ser. 2*, 1: 673. 1901, p. p.

Woody vine, often turning blackish when drying. Branches shallowly 10-sulcate, on nodes densely brownish-puberulous, elsewhere sparsely puberulous or glabrescent. Leaves ternate; leaflets papery, ovate, broadly ovate, or elliptic, $7-12.5 \times 4-6.5$ cm, apex acute or acuminate, base rounded, broadly cuneate, or cuneate, margin entire, adaxially below on basal veins sparsely puberulous, abaxially glabrous, basal veins abaxially prominent; petioles 4.5–8 cm long. Staminate

panicles solitary or paired, axillary, many-flowered; peduncles 1.5–3.5 cm long; bracts triangular, 2–3 mm long. Staminate flower ca. 1 cm in diam.; pedicel 10–20 mm long, densely brownish-puberulous; sepals 4, lanceolate-oblong, $10 \times 2 - 2.5$ mm, apex obtuse, inside glabrous, outside puberulous, margin velutinous; stamens 4–6.7 mm long, glabrous; anthers oblong, ca. 1.7 mm long; connective projections thinly clavate, ca. 1.7 mm long. Pistillate panicles similar to staminate ones. Pistillate flower also similar to staminate flower; staminodes 12–14, 8–8.5 mm long; ovaries glabrous; styles 4.5–5 mm long, densely villous. Fl. Feb. – Mar.

E Indonesia.

56. *Clematis papuasica* Merr. & Perry in J. Arn. Arb. 24 : 34. 1943; H. Eichler in Bibl. Bot. 124 : 40, fig. 9. 1958; M. Johnson, *Clematis* 505. 1997; Grey-Wils., *Clematis* 64. 2000. Type: Solomon Islands. Isabel Island, from coast to 300 m, 1932-11-22, Brass 3168 (holotype, GH!).

C. aristata R. Br. ssp. *pickeringii* auct. non (Gray) Kuntze: Schum. in Bot. Jahrb. 9 : 200. 1887; Hall. in Ann. Jard. Bot. Buitenz. 14 : 271. 1897.

C. aristata var. *pickeringii* Schum. & Hollr., Fl. Kaiser-Wilh.-Land. 47. 1889; Burkill in Proc. Camb. Phil. Soc. 9 : 94. 1896; Hall. in Bull. Herb. Boiss. ser. 2, 1 : 673. 1901, non *C. pickeringii* Gray.

C. pickeringii auct. non Gray: Warb. in Bot. Jahrb. 1 : 313. 1891.

C. aristata ssp. *glycinoides* auct. non (DC.) Kuntze: Hall. in Bull. Herb. Boiss. ser. 2, 1 : 673. 1901, p. p.

C. aristata auct. non: R. Br. Holth. & Lam in Blumea 5 : 179. 1942.

Fig. 24 : G – K

Woody vine. Branches shallowly 10–12-sulcate, puberulous, glabrescent. Leaves ternate; leaflets papery, elliptic, ovate, or narrowly ovate, $(5 - 9 - 17 - 19) \times (2.5 - 4 - 8 - 15)$ cm, apex acuminate or acute, base rounded, subcordate or broadly cuneate, margin entire, on both surfaces glabrous or subglabrous, or abaxially on midrib with sparse short hairs, basal veins abaxially prominent; petioles $(4 - 5 - 13 - 15)$ cm long. Staminate panicles axillary, large, many-flowered; peduncles 3.4–8.5 cm long, puberulous; bracts subulate-linear, ca. 10 mm long. Staminate flower 1.5–2 cm in diam.; pedicel 8–15(–25) mm long, densely puberulous; sepals 4, white, narrowly oblong or lanceolate-oblong, $7 - 9 - 10 \times 1.2 - 2.2(-3)$ mm, apex obtuse, inside glabrous, outside puberulous, margin velutinous; stamens 5–6(–7) mm long, glabrous; anthers oblong or narrowly oblong, 1–1.5 mm long; connective projections subulate, 1.3–2.5(–4.5) mm long. Pistillate panicles similar to staminate ones; peduncles up to 21 cm long. Pistillate flower similar to staminate flower; staminodes 6–8, 10–12 mm long; ovaries densely puberulous; styles 6–7 mm long, densely villous. Achenes compressed, narrowly ovate or broadly lanceolate, $4 - 5 \times 1.6 - 2$ mm, puberulous, tumidly rimmed; persistent styles 4–6(–8) cm long, plumose. Fl. Jan. – Aug.

E Indonesia, Papua New Guinea, and Solomon Islands. In forests or bushes, or by river; 5–2000 m.

Additional specimens examined.

Indonesia. Irian Jaya: Mt. Cycloop, Royen & Sleumer 6577 (K); Talaud Island, Lam 2540 (K).

Papua New Guinea. Gulf District, Schodde 4231 (K); Morobe, Henty 11678, Milar 18900, Milar & Henty 14409, Rau 171 (K); Northern District, Milar 23501, 23516 (K); Milne Bay District, Leack 56022 (K). **Solomon Islands.** Malaita Island, Kajewski 2399 (G).

57. *Clematis aristata* R. Br. ex Ker Gawler in Bot. Reg. 3 : t. 238. 1817 ; DC. , Syst. 1 : 147. 1818 ; et Prodr. 1 : 5. 1824 ; Lodd. , Bot. Cabinet t. 620. 1822 ; Spach , Hist. Nat. Veg. Phan. 7 : 283. 1839 ; Gray in Bot. U. S. Explor. Exped. 1 : 2. 1854 ; Benth. , Fl. Austral. 1 : 6. 1863 ; Kuntze in Verh. Bot. Ver. Brand. 26 : 155. 1885 ; Prantl in Bot. Jahrb. 9 : 260. 1888 ; F. M. Bailey , Queensl. Fl. 1 : 5. 1899 ; Domin in Bibl. Bot. 89 : 659. 1925 ; Ewart , Fl. Victoria 508. 1930 ; W. M. Curtis , Stud. Fl. Tasman. 1 : 9. 1956 ; Burb. & Gray , Fl. Austral. Capit. Terr. 174. 1970 ; Briggs & Makinson in Harden , Fl. New S Wales 1 : 158. 1990 ; M. Johnson , Klematis 496. 1997 ; Grey-Wils. , Clematis 60. 2000. Type : no type specimen designated ; table 238 published in Bot. Reg. Vol. 3 may be served as the nomenclatural type.

C. coriacea DC. , Syst. 1 : 146. 1818 ; et Prodr. 1 : 5. 1824 ; Hook. f. , Fl. Tasman. 1 : 2. 1860 ; Prantl in Bot. Jahrb. 9 : 260. 1888. — *C. aristata* var. *coriacea* (DC.) Benth. , Fl. Austral. 1 : 6. 1863 ; Domin in Bibl. Bot. 89 : 661. 1925 ; M. Johnson , Klematis 497. 1997. Type : Australia. Port Jackson , Anonymous s. n. (holotype , G ! ; isotype , P !).

This species consists of ca. five varieties occurring in mainland Australia with one variety extending to Tasmania.

57a. var. *aristata* Fig. 25 : A , B

Woody vine. Branches shallowly 4 – 8-sulcate , sparsely puberulous , glabrescent. Leaves ternate ; leaflets coriaceous , ovate or narrowly ovate , 2.5 – 5.5 (– 8) × 1 – 3.5 (– 4.8) cm , apex acute , base subcordate , rounded , or broadly cuneate , margin denticulate or dentate , on both surfaces very sparsely puberulous or glabrous , basal veins abaxially slightly prominent or flat ; petioles 2 – 6 cm long. Staminate cymes axillary , 2 – 9-flowered ; peduncles 2 – 10 (– 22) mm long , puberulous ; bracts sessile , triangular , ca. 3 mm long , or shortly petiolate , elliptic or lanceolate , 3 – 12 mm long. Staminate flower (2 – 2.8 – 4 cm in diam. ; pedicel (1 – 2 – 4.2 cm long , puberulous ; sepals 4 , white , narrowly oblong , oblanceolate , or oblong-lanceolate , (10 –) 17 – 23 × (2 – 3.5 – 6 mm , apex slightly acute or obtuse , inside glabrous , outside pubescent , margin velutinous ; stamens 4 – 11 mm long , glabrous ; anthers narrowly oblong or linear , 2.5 – 3.5 mm long ; connective projections subulate , 1.2 – 4 mm long. Pistillate cymes axillary , ca. 5-flowered ; peduncles 0.3 – 1.5 cm long , puberulous ; bracts sessile , linear , ca. 3 mm long , or shortly petiolate , narrowly ovate , 1 – 2.8 cm long. Pistillate flower 3 – 3.5 cm in diam. ; pedicel 2.5 – 4 cm long , puberulous ; sepals 4 , linear or linear-lanceolate , 13 – 19 × 2 – 3 mm , apex slightly acute , inside glabrous , outside puberulous , margin velutinous ; staminodes ca. 8 , 12 mm long ; ovaries puberulous ; styles 8 – 13 mm long , densely villous. Achenes compressed , fusiform , ca. 5.5 × 2.2 mm , densely puberulous ; persistent styles ca. 4 cm long , plumose. Fl. Oct. – Dec.

Australia (New South Wales , Queensland , Tasmania , Victoria). In forests or by streams ; 700 – 1330 m.

Additional specimens examined.

Australia. New South Wales : Bateman 's Bay , Schodde 5100 (G , GH , P) ; Brown Mountain , Pullen 4082 (G) ; Capital Territory , Moore 5483 , Pullen 2447 (K) ; Cotter River , Schodde 2461 (K) ; Port Jackson , Brooman 234 (K) , Camfield s. n. (LE) , Connald s. n. (G) ; Sydney , Mueller s. n. , Erik Wall s. n. (S) ; Womboyn , Constable 30147 (K). **Queensland** : Darling Downs , Williams 537 (K). **Tasmania** : without precise locality , Verreaux s. n. (G). **Victoria** : Benambra , Aston 1284 (US) ; Claemont , Long 175 (K) ; Grampians Mts. , Muir 2730 (US) ; Latrobe River , Mueller s. n. (US) ; Oakleigh , Morrison 2115 (K) ; Wilsons Promontory , Nordenstam & Anderberg 1231 (S). Without precise locality , 1816 , R. Brown s. n. (G-DC).

57b. var. *integrifolia* Domin in Bibl. Bot. 89 : 660. 1925 ; M. Johnson , Klematis 497. 1997.

Type : Australia. New South Wales : Illawara , Backhouse s. n. (holotype , K !).

This variety differs from var. *aristata* in its entire or subentire leaflets. Leaflets chartaceous , narrowly ovate , apex acute , glabrous. Anthers linear , ca. 3 mm long ; connective projections ca. 2 mm long.

Australia (SE New South Wales).

Additional specimens examined.

Australia. New South Wales : Port Jackson , Callany s. n. (K) ; Blue Mountains , Cunningham 61 (K).

57c. var. **browniana** Domin in *Bibl. Bot.* 89 : 660. 1925 ; M. Johnson , *Clematis* 497. 1997.

Type : Australia. Without precise locality , R. Brown 4851 (lectotype , K ! , designated here ; isolectotype , BM !) ; New South Wales , MacArthur 56 (syntype , K !) , Backhouse s. n. (syntype , K !).

This variety differs from var. *aristata* in its lanceolate or narrowly triangular leaflets.

Leaflets chartaceous , apex attenuate , margin denticulate , glabrous or abaxially below sparsely puberulous. Anthers narrowly oblong , 3 – 3.2 mm long ; connective projections nearly as long as anthers , 2.5 – 3 mm long. Fl. Dec.

Australia (E New South Wales). In forests.

Additional specimens examined.

Australia. Canberra , Hartley et al. 13544 , 13548 (K) ; Capital Territory : Cudgenby , Yapp 16 (GH) ; Nowra , Rodway 531 (K).

57d. var. **occidentalis** Benth. , *Fl. Austral.* 1 : 6. 1863. Type : unknown.

C. pubescens Hügel , *Enum. Pl. Hügel.* 1. 1837 ; Marchant et al. , *Fl. Perth Region* 1 : 64. 1987. — *C. aristata* var. *pubescens* (Hügel) Mueller , *Fragm. Phytogr. Austral.* 10 : 2. 1876 ; Domin in *Bibl. Bot.* 89 : 661. 1925 ; M. Johnson , *Clematis* 497. 1997. — *C. aristata* ssp. *pubescens* (Hügel) Kuntze in *Verh. Bot. Ver. Brand.* 26 : 156. 1885 , p. p. Type : Australia. Swan River , Hügel s. n. (holotype).

C. elliptica Endl. in Hügel , l. c. Type : unknown.

C. indivisa Steud. in *Lehm. , Pl. Preiss.* 1 : 262. 1844 – 1845. Type : unknown.

C. cognata Steud. in l. c. 263. Type : Middletonbay , 1830-09 , *Preiss* 1846 (isotype , G !).

C. discolor Steud. in l. c. 262. Type : Halfwayhouse , 1839-09 , *Preiss* 1344 (holotype).

C. gilbertiana Turcz. in *Bull. Soc. Nat. Mosc.* 27 : 273. 1854 ; Grey-Wils. , *Clematis* 60. 2000. Type : unknown.

C. aristata R. Br. ex Ker Gawler ssp. *gunniana* Kuntze in l. c. , p. p. Type : Australia. Swan River , Drummond s. n. (syntype , G !).

Fig. 25 : C , D

This variety differs from var. *aristata* in its usually densely puberulous branches and peduncles , usually entire leaflets , and shorter connective projections which are 0.4 – 1 (– 1.2) mm long.

Leaflets chartaceous , lanceolate or narrowly ovate , apex attenuate , margin entire , rarely sparsely denticulate , abaxially near base sparsely puberulous , glabrescent. Anthers narrowly oblong or linear , 2 – 3.5 mm long ; connective projections 2 – 3 times shorter than anthers , 0.4 – 1.2 mm long.

Australia (Western Australia).

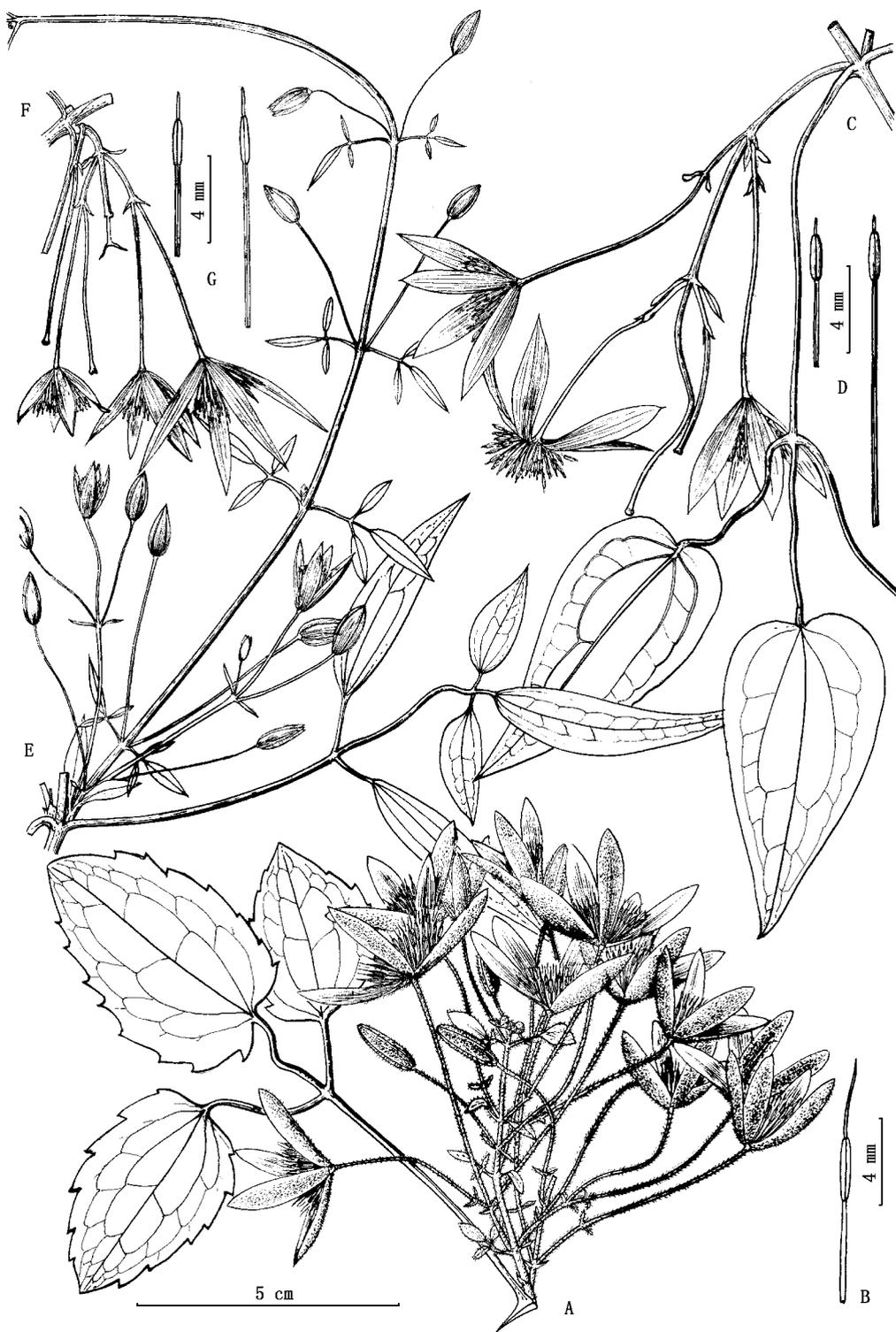


Fig. 25. A, B, *Clematis aristata* R. Br. ex Ker Gawler var. *aristata*. A, staminate flowering branch; B, stamen (from Schodde 5100). C, D, *C. aristata* var. *occidentalis* Benth. C, staminate flowering branch; D, stamen (from Morrison s. n.). E - G, *C. clitorioides* DC. E, staminate flowering branch; F, staminate cyme; G, stamens (from Anonymous 146).

Additional specimens examined.

Western Australia. Bow River, Gittings 1752 (K); Canning Dam, Perth, Nilson et al. 59 (S); Dailington, Morrison 8027 (K); Darling Range, Morrison s. n. (US); Plantagenet, Pritzel 974 (GH); Plympton, Helms 24316 (K, US); Smith's Mill, Morrison 13019 (GH, K); Westbourne, Carter 26 (K); Woololou, Koch 1426 (K); Yarrah-Karri forest, Went B98 (GH).

57e. var. longiseta F. M. Bailey in Bot. Bull. 7 : 59. 1893; et Queensl. Fl. 1 : 5. 1899; Domin in Bibl. Bot. 89 : 660. 1925; Stanley & Ross, Fl. SE Queensl. 1 : 169. 1983; M. Johnson, Klematis 497. 1997; Grey-Wils., Clematis 61. 2000. Type : Australia. Queensland : Upper Nerang Creek, H. Schneider s. n. (holotype, K!).

This variety differs from var. *aristata* in its long acuminate leaflets and in shorter anthers 1 – 1.5 mm long, 2 – 3 times shorter than connective projections.

Leaflets narrowly ovate, margin denticulate, glabrous. Sepals $10 \times 2.6 - 3.5$ mm. Anthers oblong or narrowly oblong; connective projections 3 – 3.5 mm long.

Australia (Queensland).

Unclear variety : *Clematis aristata* R. Br. ex Ker Gawler var. *dennisae* Guilf. ex Sprague in Curtis, Bot. Mag. 137 : t. 8367. 1911; Grey-Wils., Clematis 61. 2000. — *C. sanderi* W. Wats. in Gard. Chron. 41 : 310. 1907. — *C. aristata* var. *sanderi* (W. Wats.) Domin in Bibl. Bot. 89 : 659. 1925; M. Johnson, Klematis 498. 1997. This variety, occurring in Victoria, Australia, is characterized by its salmon-red stamen filaments. Unfortunately, I have not seen any specimen of it and thus have not treated it herein.

58. Clematis clitorioides DC., Syst. 1 : 158. 1818; et Prodr. 1 : 8. 1824; Kuntze in Verh. Bot. Ver. Brand. 26 : 158. 1885; Prantl in Bot. Jahrb. 9 : 260. 1888; Domin in Bibl. Bot. 89 : 662. 1925; M. Johnson, Klematis 498. 1997. Type : Australia. Near Port Jackson, specim. in Herb. Banks (holotype, BM!).

C. blanda Hook. in J. Bot. 1 : 241. 1834; et Fl. Tasman. 1 : 3. 1860. — *C. aristata* R. Br. ex Ker Gawler var. *blanda* (Hook.) Benth., Fl. Austral. 1 : 6. 1863; Ewart, Fl. Victoria 508. 1930; Grey-Wils., Clematis 61. 2000. Type : Australia. Tasmania : Launceston, 1845-01, Gunn 54 (syntype, K!). Without precise locality, Scott s. n. (syntype, K!).

C. aristata R. Br. ex Ker Gawler ssp. *gunniana* Kuntze in l. c. 156, p. p. Type : Australia. Tasmania : without precise locality, Gunn 631, 773 (syntypes, K!).

C. clitorioides DC. var. *decipiens* Domin in l. c.; M. Johnson, l. c. 499. Type : Australia. Tasmania : Holanton, J. D. Hooker 1213 (syntype, K!).

C. obtusifolia R. Br. ex W. T. Wang in Acta Phytotax. Sin. 39 : 332, fig. 5 : 3 – 6. 2001, syn. nov. Type : Australia. Tasmania : Port Dalrymple, 1802 – 1805, R. Brown 4854 (holotype, BM!); without precise locality, Gunn s. n. (paratype, S!).

C. aristata auct. non R. Br. ex Ker Gawler : Walsh in Walsh & Entwisle, Fl. Victoria 3 : 38. 1996.

Fig. 25 : E – G

Woody vine. Branches terete, very shallowly sulcate, on nodes sparsely puberulous, elsewhere glabrous. Leaves pinnate, 5-foliate, sometimes biternate or ternate; leaflets coriaceous or chartaceous, variable in shape and size, lanceolate, narrowly ovate, or ovate, sometimes lanceolate-linear, $1 - 6.4 \times 0.6 - 2.8$ cm, apex attenuate or acute, base broadly cuneate, rounded, or subcordate, margin entire, occasionally sparsely denticulate or dentate, on both surfaces glabrous or on midrib with a few hairs, basal veins abaxially slightly prominent; petioles 2.8 – 6 cm long. Staminate cymes axillary, 2 – 5-flowered, or flowers solitary in leaf axils; peduncles 0.6 – 2 cm long;

bracts petiolate, ternate. Staminate flower 3–4 cm in diam.; pedicel slender, 3–7 cm long, near apex puberulous; sepals 4, narrowly oblong or oblong-elliptic, 14–30 × 3–7.5 mm, apex attenuate or acute, inside glabrous, outside with a few hairs or glabrous, margin velutinous; stamens 5–10 mm long, glabrous; anthers linear or narrowly oblong, 2.2–3.6 mm long; connective projections subulate, 0.8–1.5 mm long. Pistillate cymes axillary, 2–6-flowered, or flowers solitary in leaf axils; peduncles 0.1–1.7 cm long; bracts petiolate, simple, narrowly ovate, ca. 1 cm long, or ternate. Pistillate flower 3–5 cm in diam.; pedicel 3–7 cm long, sparsely puberulous; sepals 4, lanceolate-oblong or linear, 12–28 × 3–6 mm, apex attenuate, inside glabrous, outside sparsely puberulous, margin velutinous; staminodes ca. 8, 10 mm long; ovaries puberulous; styles ca. 7 mm long, densely villous. Achenes compressed, narrowly elliptic, ca. 4 × 1.6 mm, puberulous, narrowly rimmed; persistent styles 1.6–3.5 cm long, plumose. Fl. Sept. – Dec.

Australia (Tasmania, Victoria).

Additional specimens examined.

Australia. Tasmania: Beaconsfield, J. H. Hemsley 6309 (K); Collinsvale, Long 309 (K); Hobart Town, Hannaford s. n. (G); Humberly, Long 186 (GH, K); Kingston, Comber 1385 (K); Launceston, Burbidge 2944 (K), Kaspiev 700, 707 (G); Mt. Barrow, Burns 233, 234, Burbidge 2992 (K); Pirates Bay, J. H. Hemsley 6188 (K); without precise locality, Anonymous 146 (G), Archer s. n. (P), Gunn s. n. (G, S), 40 (P), J. D. Hooker s. n. (UPS), Milligan 22 (P).

Ser. 3. **Gentianoides** W. T. Wang, ser. nov. Type: *C. gentianoides* DC.

Plantae suffruticosae, parvae. Caules erecti vel procumbentes. Folia simplicia vel ternata. Sepala 4–6. Connectivorum projecturae subulato-columnares, 0.5–0.9 mm longae.

Small suffruticose plants. Stems erect or procumbent. Leaves simple or ternate. Sepals 4–6. Connective projections subulate-columnar, 0.5–0.9 mm long.

One species, endemic to Tasmania.

59. Clematis gentianoides DC., Syst. 1: 159. 1818; et Prodr. 1: 8. 1824; Deless., Ic. Select. Pl. 1: t. 5. 1820; Hook. f. in J. Bot. 1: 242. 1834; et Fl. Tasman. 1: t. 3. 1860; Benth., Fl. Austral. 1: 6. 1863; Prantl in Bot. Jahrb. 9: 260. 1888; Domin in Bibl. Bot. 89: 662. 1925; Curtis, Stud. Fl. Tasman. 1: 10, fig. 5. 1956; M. Johnson, Klematis 499. 1997; Grey-Wils., Clematis 58, fig. 14. 2000. — *C. aristata* R. Br. ex Ker Gawler ssp. *gentianoides* (DC.) Kuntze in Verh. Bot. Ver. Brand. 26: 157. 1885. Type: Australia. Insula Maria, Riedley s. n. (lectotype, P!, designated here).

This species consists of three varieties.

59a. var. gentianoides Fig. 23: A, B (see p. 107)

Small suffruticose plant. Stem erect, 10–36 cm tall, shallowly 4–8-sulcate, glabrous or only on nodes sparsely puberulous. Leaves simple, sessile, coriaceous, lanceolate or linear-lanceolate, 4–7.5 × 0.5–1.6 cm, apex slightly acute, base attenuate, margin entire, sometimes sparsely denticulate, on both surfaces glabrous, basal veins 3, abaxially slightly prominent or flat, the lateral ones often inconspicuous. Flowers solitary, terminal. Staminate flower 2.5–7 cm in diam.; pedicel 4–9 cm long, glabrous; sepals 4–5, white, often tinged with pink, oblong or oblong-lanceolate, 14–40 × 3–8 mm, apex acute, inside glabrous, outside very sparsely puberulous, margin densely puberulous; stamens 4–15 mm long, glabrous; anthers narrowly oblong, 2–3 mm long; connective projections 0.5–0.9 mm long. Pistillate flower 2.5–5 cm in diam.; sepals 4–6, lanceolate-oblong or narrowly oblong, 14–27 × 2.2–7 mm, apex acute, inside glabrous, outside sparsely puberulous, margin densely puberulous; staminodes ca. 8, 8–11 mm

long ; ovaries puberulous ; styles 9 – 11 mm long , densely villous . Achenes compressed , oblong-elliptic , ca. 5×1.8 mm , puberulous ; persistent styles ca. 3.2 cm long , plumose . Fl. Nov. – Jan. Australia (Tasmania). In forests ; 100 – 270 m .

Additional specimens examined .

Australia. Tasmania : Cambridge , Giblin 2 (K) ; Dromedary , J. H. Hemsley 6538 (K) ; Knocklofty , Ratkowsky 561 (MO) ; Lake Leake , Melville 2519 (GH , K) ; Launceston , Gunn 53 (BM , MO) ; Hobart , J. D. Hooker s. n. , Comber 1949 , Cunningham 38 (K) ; Mt. Nelson , Ratkowsky 751 (MO) ; Sand Bay , Verreaux 2773 (P) ; without precise locality , Gunn s. n. (G , K , LE , P) .

59b. var. **procumbens** (Kuntze) Domin in *Bibl. Bot.* 59 : 663. 1925 ; M. Johnson , *Klematis* 500. 1997 ; Grey-Wils. , *Clematis* 59. 2000. — *C. aristata* R. Br. ex Ker Gawler ssp. *procumbens* Kuntze in *Verh. Bot. Ver. Brand.* 26 : 157. 1885. Type : Australia. Tasmania : Launceston , 1843-12-04 , Gunn 1932 (holotype , K !) .

C. gentianoides var. *scandens* Gunn ex Kuntze in l. c. , pro syn.

Stem procumbent , above ascending . Leaves all simple , margin entire . Fl. Dec .

Australia (Tasmania) .

59c. var. **tasmanica** (Kuntze) Domin in *Bibl. Bot.* 59 : 663. 1925 ; M. Johnson , *Klematis* 500. 1997 ; Grey-Wils. , *Clematis* 59. 2000. — *C. aristata* R. Br. ex Ker Gawler ssp. *tasmanica* Kuntze in *Verh. Bot. Ver. Brand.* 26 : 157. 1885. Type : Australia. Tasmania : without precise locality , Gunn s. n. (holotype , K ! ; isotype , GH !) .

Stem procumbent , above ascending . Leaves petiolate , mostly ternate , upper ones simple ; leaflets oblong , lanceolate , or narrowly lanceolate , margin dentate or entire , 3-lobed or undivided . Flowers in axillary 1 – 3-flowered cymes . Sepals up to 40×7 mm .

Australia (Tasmania) .

Subsect. 5. **Hexapetalae** (Prantl) W. T. Wang in *Acta Phytotax. Sin.* 38 : 510. 2000. — Sect. *Flammula* DC. 10. *Vitalbae* Prantl d. *Hexapetalae* Prantl in *Bot. Jahrb.* 9 : 260. 1888 , p. p. excl. *C. microphylla* DC. — Sect. *Clematis* subsect. *Hexapetalae* (Prantl) Snoeijer in *Clematis* 1992 : 15. 1992. Lectotype : *C. hexapetala* L. f. (= *C. fosteri* Gmelin) .

Sect. *Novae-Zelandiae* M. Johnson , *Klematis* 159. 1997 ; Grey-Wils. , *Clematis* 65. 2000. Type : *C. fosteri* Gmelin .

Leaves ternate , rarely simple , pinnate , or biternate . Flowering hornotinous branches arising alone from axillary buds of old branch . Sepals 4 – 7 (– 8) , imbricate , sometimes partly valvate (*C. afooliata* , *C. paniculata*) , oblong to linear , rarely obovate-elliptic , outside on margin not velutinous . Stamens slightly or two or more times shorter than sepals ; anthers oblong or narrowly oblong , rarely linear (*C. fosteri* , *C. australis*) ; connectives at apex not projected , rarely slightly projected (*C. australis*) . Staminoïdes 2 – 5 (– 8 – 13) .

Eleven species in four series , endemic to New Zealand .

Key to species

1. Sepals 4 .

2. Leaflet blades strongly reduced , usually wanting 60. **C. afooliata**

2. Leaves ternate , with well developed leaflet blades .

3. Bracteoles free , spatulate ; sepals greenish or yellowish 61. **C. marata**

3. Bracteoles connate at base , ovate ; sepals brown or purplish 62. **C. quadribracteolata**

1. Sepals (5 – 6 – 7 – 8) .

4. Woody vines ; leaves compound ; sepals lanceolate-oblong or lanceolate .

5. Leaves usually once ternate , leaflets usually undivided , rarely lobed , not once to twice pinnate .
6. Sepals of staminate flower white , up to 4 cm long ; stamens more than 50 63. **C. paniculata**
6. Sepals of staminate flower yellowish or yellow (in *C. fosteri* sometimes greenish-white) , smaller , up to 2 cm long ; stamens fewer than 35 .
7. Pedicels of pistillate flowers densely puberulous or velutinous ; anthers oblong , 1 mm long ; sepals inside glabrous .
8. Leaflets papery ; sepals outside puberulous ; anthers at apex obtuse or minutely apiculate ; flowers faintly scented 64. **C. cunninghamii**
8. Leaflets subcoriaceous ; sepals outside densely puberulous ; anthers at apex obtuse ; flowers very fragrant 65. **C. foetida**
7. Pedicels of pistillate flowers puberulous ; anthers linear or narrowly oblong , 1.6 – 2.8 mm long ; sepals inside usually puberulous , sometimes nearly glabrous 66. **C. fosteri**
5. Leaves mostly biternate , or ternate and the leaflets once to twice pinnate .
9. Sepals inside puberulous ; ovary and achene puberulous .
10. Leaves twice or once ternate , leaflets usually 2 – 3-lobed ; anthers narrowly oblong or oblong , 1.2 – 2 mm long , apex obtuse 67. **C. hookeriana**
10. Leaves ternate , leaflets once to twice pinnate ; anthers linear or narrowly oblong , 2 – 2.8 mm long , apex minutely apiculate 68. **C. australis**
9. Sepals inside glabrous ; ovary and achene glabrous 69. **C. petriei**
4. Low erect subshrub ; leaves simple , palmately 3-sect ; sepals obovate-elliptic 70. **C. marmoraria**

Ser. 1. **Afoliatae** W. T. Wang in Acta Phytotax. Sin. 38 : 512. 2000. Type : *C. afoliata*

Buchan.

Woody vines. Leaves usually without blades. Pedicels usually lacking bracteoles. Sepals 4 , lanceolate. Stamines ca. 2.

One species.

60. Clematis afoliata Buchan. in Trans. New Zealand Inst. 3 : 211. 1871 ; Kirk , Stud. Fl. New Zealand 3. 1899 ; Sprague in Curtis , Bot. Mag. 142 : t. 8686. 1916 ; Cheesem. , Man. New Zealand Fl. , ed. 2 , 432. 1925 ; Allan , Fl. New Zealand 1 : 170. 1961 ; Webb et al. , Fl. New Zealand 4 : 1008. 1988 ; M. Johnson , Klematis 162. 1997 ; Grey-Wils. , Clematis 66 , fig. 20. 2000. Type : New Zealand. Waitaki Valley , Buchanan s. n. (holotype , K !).

C. aphylla Kuntze in Verh. Bot. Ver. Brand. 26 : 146. 1885 ; Prantl in Bot. Jahrb. 9 : 260. 1888. Type : New Zealand. Banks Peninsula , 1866 , Armstrong 129 (syntype , K !) ; Huvanon , Waitaki Valley , Hector & Buchanan 1 (syntype , K !).

C. aphylla Colenso in Trans. New Zealand. Inst. 19 : 259. 1887. Type : New Zealand. Puketapu , near Napier , 1885 , Hill s. n. (holotype).

Woody vine. Branches finely shallowly ca. 16-sulcate , glabrous. Leaf blade usually wanting , when present , then small , either simple , ovate , entire , or ternate (Tamura , 1995) ; petiole 5 – 12 cm long , glabrous , tendril-like. Staminate cymes axillary , 1 – 3-flowered ; peduncles wanting ; bracts ovate , ca. 2 mm long. Staminate flower ca. 2 cm in diam. ; pedicel ca. 2 cm long , densely puberulous ; sepals 4 , greenish-yellow , lanceolate or oblong-lanceolate , ca. 18 × 4.5 – 6.5 mm , apex obtuse , inside only near apex sparsely puberulous , elsewhere glabrous , outside densely appressed-puberulous ; stamens 6 – 9 mm long , glabrous ; anthers narrowly oblong , ca. 2.5 mm long , apex minutely apiculate or obtuse. Pistillate cymes axillary , 2 – 4-flowered ; peduncles wanting ; bracts ovate , ca. 1.5 mm long. Pistillate flower ca. 1.8 cm in diam. ; pedicel 1.2 – 1.8 cm long , densely puberulous , without or rarely with a pair of bracteoles ; sepals 4 , oblong-lanceolate , ca. 15 × 4 mm , inside near apex while outside on entire surface puberulous ; staminodes ca. 2 , 6 mm long ; ovaries puberulous ; styles 5 – 6 mm long , densely villous. Achenes compressed , oblong , ca.

4 × 2 mm , puberulous , narrowly rimmed ; persistent styles ca. 2 cm long , plumose. Fl. Aug. – Nov.

New Zealand (North Island : Wellington ; South Island : Marlborough , Canterbury , N Otago). In rocky and open places , or in scrubs (Webb et al. , 1988).

Additional specimens examined.

New Zealand. South Island : without precise locality , Kirk s. n. (GH) ; Waitaki Valley , Meeklah 258696 (G).

Ser. 2. **Maratae** W. T. Wang in Acta Phytotax. Sin. 38 : 512. 2000. Type : *C. marata* Armstr.

Woody vines. Leaves ternate. Pedicels with opposite , ovate or spatulate bracteoles. Sepals 4 , lanceolate or linear. Staminodes 2 – 4.

Two species.

61. Clematis marata Armstr. in Trans. New Zealand. Inst. 13 : 335. 1881 ; Kirk , Stud. Fl. New Zealand 4. 1899 ; Cheesem. , Man. New Zealand Fl. , ed. 2 , 433. 1925 ; Allan , Fl. New Zealand 1 : 171. 1961 ; Cartman in Canterb. Bot. Soc. J. 20 : 36. 1986 ; Webb et al. , Fl. New Zealand 4 : 1010. 1988 ; M. Johnson , Klematis 166. 1997 ; Grey-Wils. , Clematis 67 , fig. 21. 2000. — *C. hexapetala* L. f. ssp. *marata* (Armstr.) Kuntze in Verh. Bot. Ver. Brand. 26 : 107. 1885. Type : New Zealand. Canterbury and Nelson , J. B. Armstrong s. n. (syntype).

Fig. 26 : D – G

Woody vine. Branches slender , shallowly 4 – 6-sulcate , only on nodes sparsely puberulous or glabrous. Leaves ternate ; leaflets coriaceous , usually ovate , 3 – 9 × 2 – 8 mm , margin entire , 3-parted or 3-sect , on both surfaces sparsely puberulous or glabrescent , basal veins obscure ; petioles 1 – 4.5 cm long , puberulous. Staminate cymes axillary , 1-flowered ; peduncles 4 – 12 mm long ; bracts spatulate , ca. 4 mm long. Staminate flower 2.4 – 3 cm in diam. ; pedicel 10 – 12 mm long , puberulous ; bracteoles free , spatulate , up to 13 mm long ; sepals 4 , yellowish-green , lanceolate , oblong , or narrowly ovate , 12 – 15 × 3 – 6 mm , apex slightly obtuse , inside glabrous , outside densely puberulous ; stamens 5 – 8 mm long , glabrous ; anthers narrowly oblong , 2.5 – 2.8 mm long , apex obtuse. Pistillate cymes axillary , 1 – 3-flowered ; peduncles absent ; bracts ovate , 1.5 – 3 mm long. Pistillate flower 1.6 – 2 cm in diam. ; pedicel 3 – 8 mm long , densely puberulous ; bracteoles spatulate or narrowly oblanceolate , 4 – 15 mm long ; sepals 4 , narrowly ovate or lanceolate , 8 – 10 × 2.5 – 4 mm , apex slightly obtuse , inside glabrous , outside densely puberulous ; staminodes ca. 4 , 7 mm long ; ovaries glabrous ; styles ca. 6 mm long , densely villous. Achenes compressed , narrowly ovate , ca. 2.5 mm long , glabrous ; persistent styles ca. 2 cm long , plumose. Fl. Sept. – Dec.

New Zealand (South Island : Marlborough , Canterbury , Otago , Southland). On dry hills or in scrubs. (Webb et al. , 1988).

Specimens examined.

New Zealand : Canterbury : Broker River , Lothian s. n. (K) ; Mt. Peel , Philipson 10143 (K) ; Ruatime-Cook , Allan 1989 (GH). South Island : without precise locality , Kirk s. n. (GH).

62. Clematis quadribacteolata Colenso in Trans. New Zealand Inst. 14 : 329. 1882 ; Kirk , Stud. Fl. New Zealand 4. 1899 ; Cheesem. , Man. New Zealand Fl. , ed. 2 , 433. 1925 ; Allan , Fl. New Zealand 1 : 171. 1961 ; Cartman in Canterb. Bot. Soc. J. 20 : 36. 1986 ; Webb et al. , Fl. New Zealand 4 : 1011. 1988 ; M. Johnson , Klematis 170. 1997 ; Grey-Wils. , Clematis 68 , fig. 22. 2000 ; W. T. Wang in Acta Phytotax. Sin. 38 : 512. 2000. Type : New Zealand. Hawke 's Bay , Colenso s. n. (holotype , K !).

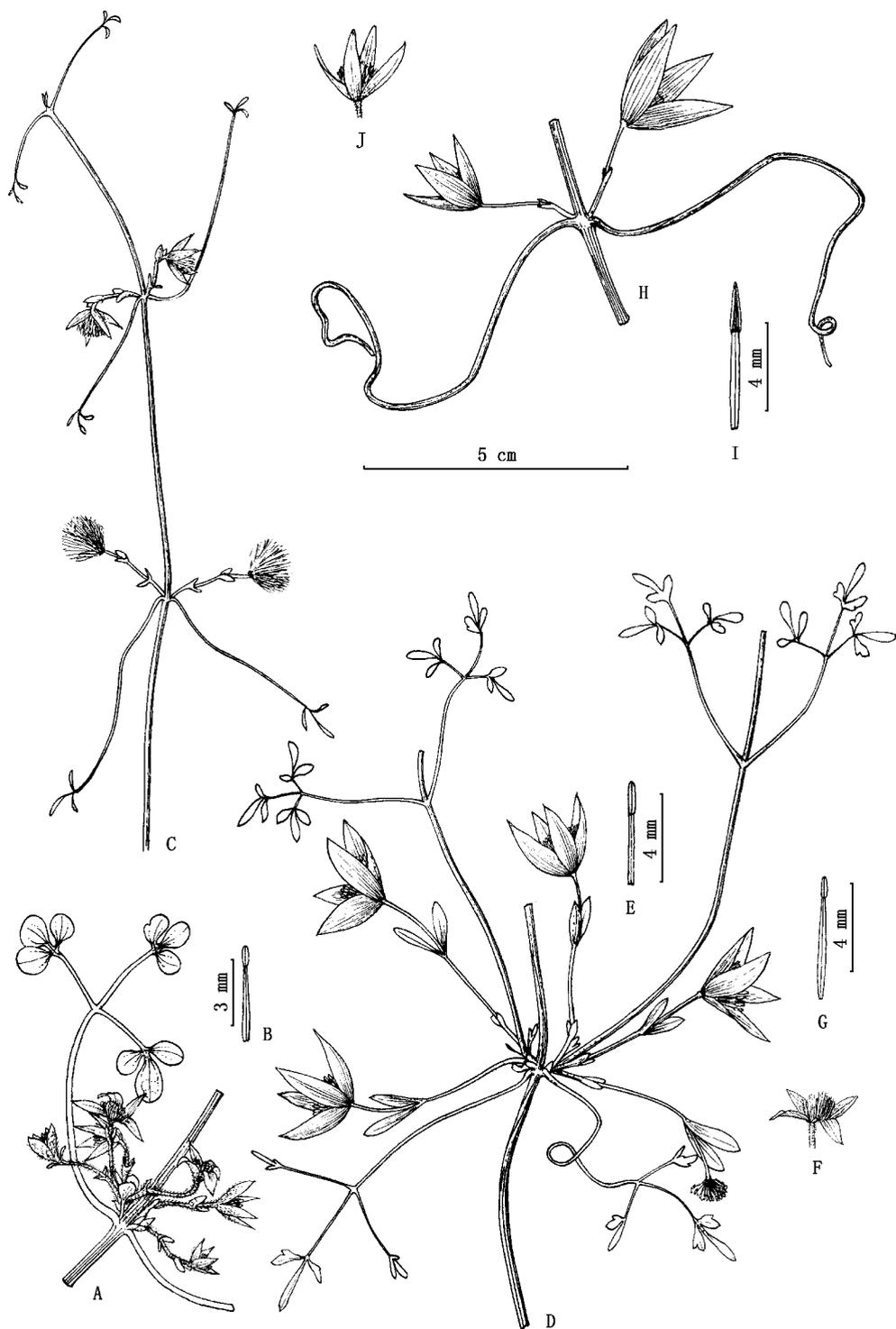


Fig. 26. A - C, *Clematis quadribracteolata* Colenso. A, staminate flowering branch; B, stamen (from Gardner 3146); C, pistillate flowering branch (from Colenso s. n.). D - G, *C. marata* Armstr. D, staminate flowering branch; E, stamen (from Philipson s. n.); F, pistillate flower; G, staminode (from Lothian s. n.). H - J, *C. affoliata* Buchan. H, staminate flowering branch; I, stamen; J, pistillate flower (from Kirk s. n.).

C. foetida Raoul var. *depauperata* Hook. f., Fl. Nov. Zealand. 7. 1852; et Handb. New Zealand Fl. 2. 1864. — *C. hexapetala* L. f. ssp. *depauperata* (Hook. f.) Kuntze in Verh. Bot. Ver. Brand. 26:108. 1885. Type: New Zealand. Lake Rotoatara, Colenso s. n. (holotype, K!).

C. parviflora Cunn. var. *depauperata* Hook. f., Handb. New Zealand Fl. 2. 1864; Kirk, Stud. Fl. New Zealand 5. 1899; Cheesem., Man. New Zealand Fl., ed. 2, 432. 1925; M. Johnson, Klematis 169. 1997. Type: New Zealand. Nelson, 1861, Travers s. n. (holotype, K!).

C. marata auct. non Armstr.: Allan, Fl. New Zealand 1:168. 1961, quoad specim. Travers s. n. a Nelson lectum.

Fig. 26: A – C

Woody vine. Branches slender, shallowly 4 – 6-sulcate, glabrous or sparsely puberulous. Leaves ternate; leaflets coriaceous, linear, linear-oblong, ovate, or elliptic, 3 – 12 × 2 – 4 mm, undivided or 2 – 3-lobed, on both surfaces very sparsely puberulous or glabrous, basal veins obscure; petioles 1.5 – 4.2 cm long. Staminate cymes axillary, 1 – 3-flowered; peduncles nearly absent; bracts triangular, ca. 1 mm long. Staminate flower 1.5 – 2.5 cm in diam.; pedicel 3 – 7 mm long, densely puberulous; bracteoles opposite, ovate, 2.5 – 3 mm long, base connate; sepals 4, purple-brown, linear, 7 – 12 × 1.5 – 2 mm, apex acute, inside glabrous, outside puberulous; stamens 2 – 7 mm long, glabrous; anthers oblong, 0.8 – 1 mm long, apex obtuse. Pistillate cymes similar to staminate cymes, 1-flowered. Pistillate flower 0.8 – 1 cm in diam.; pedicel 5 – 9 mm long, densely puberulous; bracteoles similar to those of staminate flower; sepals 4, linear, 6.5 – 12 × 1.2 – 2 mm, apex acute, inside glabrous, outside densely puberulous; staminodes ca. 2, 4 – 7 mm long; ovaries puberulous; styles 5 – 8 mm long, densely villous. Achenes compressed, narrowly ovate, ca. 2 mm long, puberulous or glabrous; persistent styles 1.8 – 2.5 cm long, plumose. Fl. Sept. – Oct.

New Zealand (North Island: Bay of Plenty, Hauhangaroa, Kaimanava, Ruahine Range; South Island: Nelson, Marlborough, Westland, Canterbury, Otago, Southland). In rocky scrubby areas. (Webb et al., 1988).

Additional specimens examined.

New Zealand. Canterbury, Page 12431 (US); Nelson, Travers s. n. (G-Bois); New Brighton, Cockayne 16 (LE); Waitomo, Gardner 3146 (K); without precise locality, Colenso s. n. (GH, K).

Ser. 3. **Hexapetalae** W. T. Wang in Acta Phytotax. Sin. 38:512. 2000. Type: *C. fosteri* Gmelin.

Woody vines. Leaves once or twice ternate. Pedicels without conspicuous opposite bracteoles. Sepals (4 – 5 – 6 – 8), lanceolate or narrowly oblong. Staminodes 3 – 5 – 12).

Seven species.

63. Clematis paniculata Gmelin, Syst. Nat. 2(1):873. 1791; Allan, Fl. New Zealand 1:166. 1961; Webb et al., Fl. New Zealand 4:1011. 1988; M. Johnson, Klematis 168. 1997; Grey-Wils., Clematis 70, figs. 25, 26. 2000. Type: unknown.

C. integrifolia Forst. f. Prodr. 42. 1786, non L. 1753. Type: New Zealand. Without precise locality, Forster s. n.

C. indivisa Willd., Sp. Pl. 2:1291. 1800; DC., Syst. 1:148. 1818; et Prodr. 1:5. 1824; Cunn. in Ann. Nat. Hist., ser. 1, 4:259. 1840; Steud. in Lehm. Pl. Preiss. 1:262. 1844; Hook. f., Fl. Nov. Zealand. 1:6. 1853; et Handb. New Zealand Fl. 2. 1864; Gray in Bot. U. S. Explor. Exped. 1:2. 1854; Kirk, Stud. Fl. New Zealand 2. 1899; Cheesem., Ill.

New Zealand Fl. 1 : pl. 1. 1914. Type : possibly the same as that of *C. integrifolia* Forst. f.

C. indivisa var. *lobata* Hook. f. in Curtis, Bot. Mag. 74 : t. 4398. 1848 ; van Houtte, Fl. Serres 4 : pl. 402. 1848 ; Kirk, l. c. Type : no type specimen designated.

? *C. indivisa* var. *decomposita* Kirk et var. *linearis* Kirk, l. c. Type : no type specimen designated.

Fig. 27 : H, I

Woody vine. Branches stout, shallowly 8 - 12-sulcate, puberulous or nearly glabrous. Leaves ternate ; leaflets coriaceous, ovate, elliptic-ovate, or broadly ovate, (2 - 3) - 7.5 × (1.2 - 1.8) - 4 cm, apex obtuse or rounded, sometimes emarginate, margin entire, undivided or 3-lobed, 3-parted, and dentate, on both surfaces glabrous, basal veins flat or nearly flat ; petioles 2.4 - 5 cm long, sparsely puberulous or glabrous. Staminate cymes axillary, 1 - 7-flowered, often panicle-like ; peduncles wanting or short ; bracts ovate, ca. 3 mm long, sometimes foliaceous. Staminate flower (2.5 - 3.5) - 8 cm in diam. ; pedicel 2.5 - 6.5 cm long, densely puberulous ; sepals 5 - 8, white, oblong, narrowly oblong, or lanceolate-oblong, (12 - 28 - 40) - 50) × 6 - 20 mm, apex obtuse or rounded, inside glabrous, outside puberulous ; stamens 8 - 13 mm long, glabrous ; anthers oblong, 1.5 - 2 mm long, apex obtuse. Pistillate cymes 5 - 15-flowered ; peduncles 3 - 18 mm long or wanting ; bracts triangular or linear, 3 - 7 mm long. Pistillate flower 2.5 - 5 cm in diam. ; pedicel 1 - 3.4 cm long, densely puberulous ; sepals 5 - 7, oblong or ovate-oblong, 13 - 26 × 5 - 11 mm, inside glabrous, outside puberulous ; staminodes ca. 12, 7 - 9 mm long ; ovaries puberulous ; styles 7 - 9 mm long, densely villous. Achenes compressed, nearly fusiform, ca. 4 × 2 mm, puberulous ; persistent styles 3 - 5.2 cm long, plumose. Fl. Aug. - Nov.

New Zealand (widespread on North Island and South Island). In lowland forests or along forest margins (Webb et al., 1988).

Specimens examined.

New Zealand. Auckland : without precise locality, Carse 115 (US), Cheeseman s. n. (K), Matthews 2185 (US) ; Mt. Wellington, Carse & Matthews 113 (AK) ; Otau Mts., Davis s. n. (US) ; Waitakere Range, Cooper 6014 (US), Evetts s. n. (AK), Melville 51070 (AK), Rose s. n. (US) ; Bay of Islands, Orchard 4089 (AK) ; Canterbury, Anderson 184 (GH, MO, US) ; Dunedin, Begg s. n., Watt s. n. (K) ; Jacks Bay, Cooper 127380 (GH) ; Kaitoke, Nilsson 7 (S) ; North Island, Kirk s. n. (GH), 134 (US) ; Mangonui, Melville & Moore 5288 (AK) ; Nelson, Chapman 258008, Travers 49 (K) ; Ohaewai, Berggren s. n. (S, UPS) ; Otago, Lyall s. n. (K) ; Palmerston, Calder s. n. (K) ; Tararua Range, Nilsson 6 (S) ; Tampo Co., Gardner 3154 (K) ; Titirangi, Chapman s. n. (S) ; Waikawou Bay, Cameron 11201 (AK) ; Wellington, Cecil 159 (K), Travers s. n. (G, P) ; Whaka Thermal, Mabbett s. n. (K) ; Whangarei Co., Cooper 127347 (K) ; Whangaroa Co., Orchard 3587 (AK, K) ; without precise locality, J. D. Hooker s. n. (G, K, P, S), Stephenson 29 (G).

64. Clematis cunninghamii Turcz. in Bull. Bot. Soc. Mosc. 36 : 545. 1863 ; Gardn. in New Zealand J. Bot. 19 : 327. 1981 ; Webb et al., Fl. New Zealand 4 : 1008. 1988 ; Grey-Wils., Clematis 71. 2000. — *C. parviflora* Cunn. in Ann. Nat. Hist. ser. 1, 4 : 259. 1840, non DC. 1823, nec Nutt. 1838 ; Hook. f., Fl. Nov. Zealand 1 : 7. 1853 ; et Handb. New Zealand Fl. 2. 1864 ; Cheesem., Ill. New Zealand Fl. 1 : pl. 2. 1914 ; et Man. New Zealand Fl., ed. 2, 432. 1925 ; Allan, Fl. New Zealand 1 : 168. 1961 ; M. Johnson, Clematis 168. 1997. — *C. hexapetala* L. f. ssp. *foetida* var. *parviflora* (Cunn) Kuntze in Verh. Bot. Ver. Brand. 26 : 107. 1885, cum f. *dentata* Kuntze et f. *integerrima* Kuntze. Type : New Zealand. North Island : Wangaroa, 1826, Cunningham s. n. (holotype, BM. — Allan, 1961).

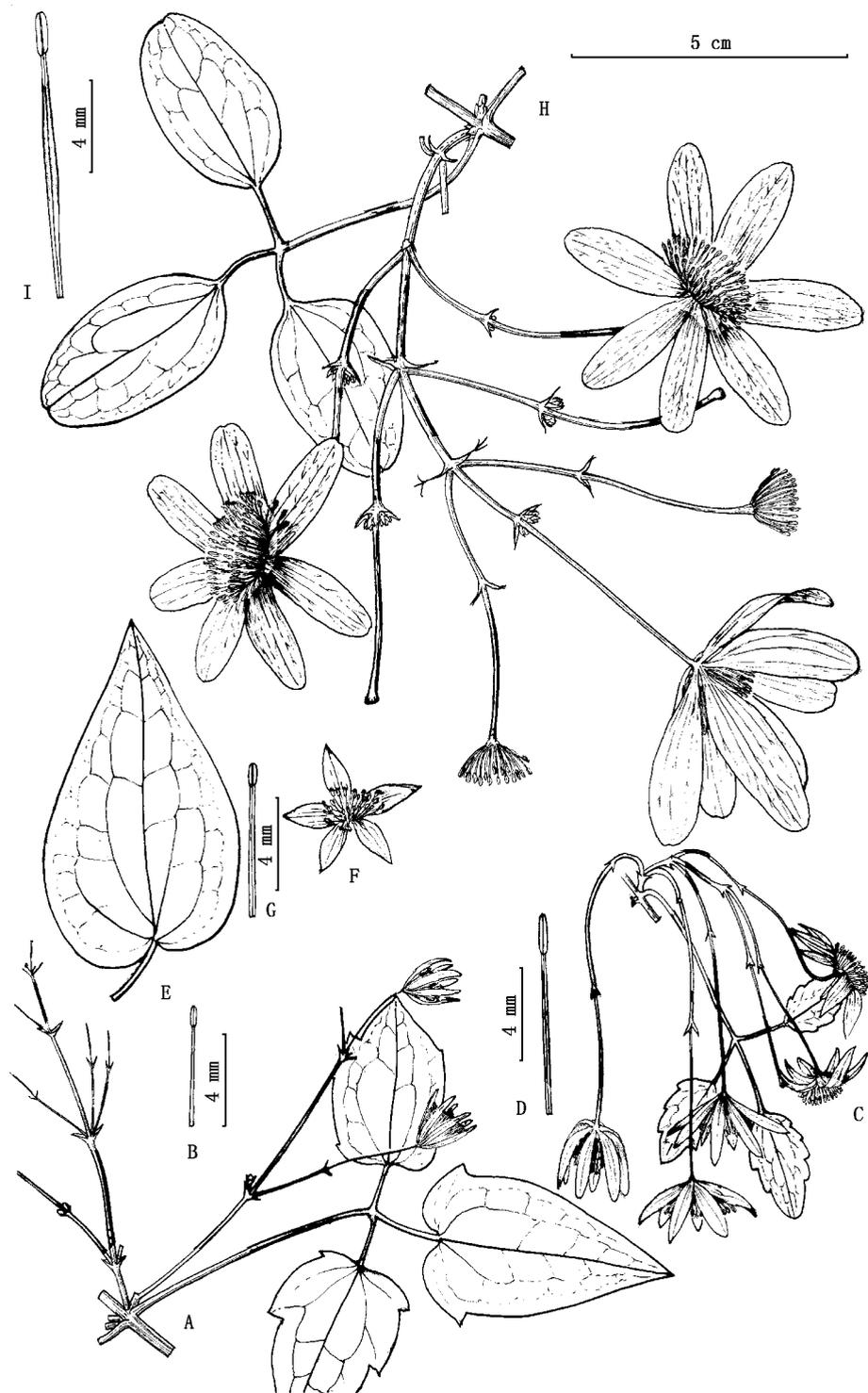


Fig. 27. A, B, *Clematis cunninghamii* Turcz. A, staminate flowering branch; B, stamen (from Cheeseman s. n.). C, D, *C. fosteri* Gmelin. C, staminate flowering branch; D, stamen (from Stephanson 42). E - G, *C. foetida* Raoul. E, leaflet; F, staminate flower; G, stamen (from Kelly s. n.). H, I, *C. paniculata* Gmelin. H, staminate flowering branch; I, stamen (from Cooper s. n.).

C. hillii Colenso in Trans. New Zealand Inst. 31 :266. 1899. Type :New Zealand. Ruahine Mountain Range , Hill s. n. (holotype).

Fig. 27 : A , B

Woody vine. Branches slender , shallowly 6 – 8-sulcate , sparsely puberulous . Leaves ternate ; leaflets papery , ovate or narrowly ovate , 1 – 5.5 (– 6.2) × 0.8 – 3.4 (– 4.8) cm , apex acute , often shortly apiculate , base rounded , subcordate , or cordate , margin entire , sometimes 1 – 2-dentate , seldom 2-lobed , adaxially sparsely while abaxially more or less densely puberulous , basal veins flat ; petioles 2 – 5.5 cm long . Staminate cymes axillary , 2 – 7-flowered , sometimes staminate flowers singularly axillary ; peduncles 0.15 – 3.5 cm long , densely puberulous ; bracts linear or foliaceous . Staminate flower 1.4 – 2.5 cm in diam. ; pedicel 0.7 – 2.5 cm long , densely puberulous ; sepals 5 – 7 , yellowish , linear-lanceolate or narrowly oblong , 6 – 13 × 1.2 – 3.5 mm , apex acute , inside glabrous , outside puberulous ; stamens 2 – 9 mm long , glabrous ; anthers elliptic-oblong , ca. 1 mm long , apex minutely apiculate or obtuse . Pistillate cymes axillary , 1 – 5-flowered ; peduncles 0.2 – 3 cm long ; bracts linear , 1 – 3 mm long . Pistillate flower 1.2 – 1.8 (– 3) cm in diam. ; pedicel 0.7 – 2 cm long , densely puberulous ; sepals 6 – 7 , greenish-yellow , linear-lanceolate or narrowly oblong , 6.5 – 10 (– 15) × 1.5 – 2.5 mm , inside glabrous , outside puberulous ; staminodes 3 – 10 , 4 – 6 mm long ; ovaries puberulous ; styles 5 – 7 mm long , densely villous . Achenes compressed , fusiform , ca. 4 × 1.5 mm , puberulous ; persistent styles ca. 3 cm long , plumose . Fl. Sept. – Nov.

New Zealand (North Island : Auckland , Gisborne). In lowland forests or along forest margins . (Webb et al. , 1988).

Specimens examined.

New Zealand. Hokinnga , Berggren s. n. (S , UPS) ; Little Barrier Island , Mokoworth s. n. (US) , Shakespear s. n. (K) ; Pokenoe , Kirk 236 (GH) ; Wara Wara , Cooper 35570 (US) ; Phangarei , Cheeseman s. n. (G) ; Mt. Wellington , Cheeseman s. n. (GH) ; without precise locality , Cunningham 636 (K) , J. D. Hooker 345 (K) , s. n. (S) , W. J. Hooker s. n. (GH) , Kirk 131 (GH , US).

65. Clematis foetida Raoul , Choix Pl. Nouv.-Zel. 23 , t. 22. 1846 ; Hook. f. , Fl. Nov.-Zealand. 7. 1853 ; et Handb. New Zealand Fl. 2. 1864 ; Kirk , Stud. Fl. New Zealand 4. 1899 ; Allan , Fl. New Zealand 1 : 167. 1961 ; Webb et al. , Fl. New Zealand 4 : 1008. 1988 ; M. Johnson , Klematis 163. 1997 ; Grey-Wils. , Clematis 72. 2000. — *C. hexapetala* L. f. ssp. *foetida* (Raoul) Kuntze in Verh. Bot. Ver. Brand. 26 : 107. 1885. Type : New Zealand. Banks Peninsula , 1843 , Raoul 91 (holotype , P ! ; isotype , K !).

Fig. 27 : E – G

Woody vine. Branches shallowly 10 – 12-sulcate , puberulous , glabrescent . Leaves ternate , sometimes pinnate or biternate ; leaflets subcoriaceous , ovate or narrowly ovate , 2 – 5 × 1 – 3 cm , apex acute or obtuse , base rounded or subcordate , margin entire or sparsely denticulate or crenulate , on both surfaces when young densely yet when mature sparsely appressed-puberulous , glabrescent , basal veins abaxially nearly flat ; petioles 3 – 6 cm long . Staminate cymes axillary , (2 – 7) many-flowered , often panicle-like ; peduncles 1 – 19 mm long , densely puberulous ; bracts deltoid , 2.5 – 3.5 mm long . Staminate flower 1.7 – 2.2 cm in diam. ; pedicel 8 – 11 mm long , densely puberulous ; sepals 4 – 6 , yellow , ovate-oblong or narrowly oblong , 5 – 10 × 1.2 – 5 mm , apex obtuse , inside glabrous , outside densely puberulous ; stamens 3 – 6 mm long , glabrous ; anthers oblong , ca. 1 mm long , apex obtuse . Pistillate cymes axillary , ca. 15 – flowered , panicle-like ; peduncle 0 – 5 mm long ; bracts sessile , triangular , 2.5 – 3.5 mm long , sometimes shortly petiolate , suborbicular , 0.5 – 1 cm long . Pistillate flower 1.4 – 1.8 cm in diam. ; pedicel 6 – 15 mm long ,

velutinous ; sepals 4 – 6 , ovate-oblong or oblanceolate , 7 – 11 × 2 – 5 mm , apex slightly obtuse , inside glabrous , outside densely puberulous ; staminodes ca. 4 , 4 – 5 mm long ; ovaries puberulous ; styles 5 – 6 mm long , densely villous . Achenes compressed , elliptic , 2 – 3 × 1 – 1.5 mm , puberulous ; persistent styles ca. 1.8 cm long , plumose . Fl. Sept. – Nov .

New Zealand (North Island : throughout except Taranaki ; South Island : Nelson , Marlborough , Canterbury , E Otago). In lowland forests or along forest margins (Webb et al. , 1988).

Additional specimens examined .

New Zealand. Bay of Islands , J. D. Hooker s. n. (K). Canterbury : Banks Peninsula , Hasst 71 , 295 , Kelly s. n. (K) ; Peel Forest , Anderson 188 (K , US) ; Port Hills , Simpson 7722 (AK , K) ; without precise locality , Philipson 10074 (K) ; Marlborough , Tibell NZ 245 (UPS) ; North Island , without precise locality , Kirk 236 (GH , US) ; without precise locality , 1883-09 , Colenso s. n. (K).

66. *Clematis fosteri* Gmelin , Syst. Nat. , ed. 13 , 873. 1791 ; Allan , Fl. New Zealand 1 : 167. 1961 ; Webb et al. , Fl. New Zealand 4 : 1009. 1988 ; M. Johnson , *Clematis* 164. 1997 ; Grey-Wils. , *Clematis* 68. 2000 ; Heenan & Cartman in New Zealand J. Bot. 38 : 581 , fig. 6. 2000 , p. p. — *C. hexapetala* L. f. , Suppl. Pl. Syst. Veg. 271. 1781 , non Pall. , 1772 ; Kuntze in Verh. Bot. Ver. Brand. 26 : 106. 1885 ; Prantl in Bot. Jahrb. 9 : 260. 1888. — *C. hexapetala* Forst. f. , Prodr. 42. 1786 , non Pall. , 1772 ; Willd. , Sp. Pl. 2 : 1290. 1800. — *C. hexasepala* DC. , Syst. 1 : 146. 1818 ; et Prodr. 1 : 5. 1824 ; A. Cunn. in Ann. Nat. Hist. , ser. 1 , 4 : 260. 1840 ; Hook. f. , Handb. New Zealand Fl. 2. 1864. Type : New Zealand. Without precise locality , 1773-11 , Forster s. n. (LINN-SM 974. 12 , lectotype—Heenan & Cartman , 2000).

C. colensoi Hook. f. , Fl. New Zealand 1 : 6 , t. 1. 1852 ; Prantl in Bot. Jahrb. 9 : 260. 1888. Type : New Zealand. Northern Island , Colenso 792 (lectotype , K—Heenan & Cartman , 2000) , Banks & Solander s. n. (syntype).

Fig. 27 : C , D

Woody vine . Branches slender , shallowly 6 – 10-sulcate , glabrous . Leaves ternate ; leaflets subcoriaceous , ovate or narrowly ovate , 1.8 – 6 × 1.4 – 4 cm , apex acute or obtuse , base cordate or subcordate , margin dentate or crenate , sometimes entire , adaxially glabrous , abaxially on midrib sparsely pilose or nearly glabrous , basal veins abaxially nearly flat ; petioles 3 – 6.5 cm long . Staminate cymes axillary , 1 – 10-flowered ; peduncles 1 – 10 mm long or nearly wanting ; bracts triangular , 1 – 3 mm long . Staminate flower 2.5 – 4 cm in diam. ; pedicel 1 – 3.5 cm long , puberulous ; sepals 5 – 7 (– 8) , narrowly oblong or oblong , 13 – 20 × 2.5 – 8 mm , apex obtuse or slightly acute , on both surfaces more or less densely puberulous or inside nearly glabrous ; stamens 5 – 9 mm long , glabrous ; anthers narrowly oblong , 1.5 – 2.8 mm long , apex obtuse or with very small apicula 0.1 mm long . Pistillate cymes axillary , 1 – 4 (– 10)-flowered ; peduncles 0.6 – 1 cm long ; bracts sublinear or narrowly triangular , ca. 3 mm long . Pistillate flower ca. 1.8 cm in diam. ; pedicel 1.2 – 1.5 cm long , puberulous ; sepals ca. 6 , narrowly oblong , 8 – 11 × 2 – 3 mm , inside glabrous , outside sparsely puberulous ; staminodes ca. 4 , 5 mm long ; ovaries puberulous ; styles 5 – 6 mm long , densely villous . Achenes compressed , narrowly ovate , ca. 4 × 0.2 mm , puberulous , indistinctly rimmed ; persistent styles ca. 2 cm long , plumose . Fl. Sept. – Nov .

New Zealand (North Island : from 36° southwards ; South Island : Nelson , Marlborough). In lowland forests or along forest margins (Allan , 1961 ; Webb et al. , 1988).

Specimens examined .

New Zealand. Auckland , Molesworth s. n. (AK) ; Canterbury , Moore s. n. (US) ;

Greymouth , Helm s. n. (P); Horopito , McKenzie s. n. (AK); Hunterville , Burgers s. n. (K); Meramar , Kirk s. n. (GH); Motuara Island , Beever 9130 (AK); Ohakune , Attwood s. n. (US); Pukerua Bay , MID s. n. (AK); Taupo Co. , Gardner 3985 (AK); Te Kuiti , Kopaki , Hynes s. n. (AK); Thames District , Adams s. n. (AK); Thumes , Cheeseman s. n. (US); Wellington , Kirk s. n. (GH), Travers s. n. (P); without precise locality , Stephenson 42 (G).

Due to that " the *Clematis fosteri* complex is highly variable " Webb et al. (1988) reduced *C. australis* Kirk , *C. hookeriana* Allan , and *C. petriei* Allan into the synonymy of *C. fosteri* Gmelin . On the basis of his cultivation of the plants of the relevant four taxa the horticulturist Elliott (1993) did not agree to the lumping of the four taxa into one . After their intensive study of the *C. fosteri* complex , Heenan & Cartman (2000) reinstated *C. petriei* as an independent species , and continued to reject *C. hookeriana* and *C. australis* . During the preparation of the present revision I have examined some herbarium material of this complex borrowed from several herbaria , and failed to find any intermediate form between *C. fosteri* and *C. hookeriana* or *C. australis* as stated by Heenan & Cartman (2000) . At the same time , however , I found out several differential morphological characters among them : *C. petriei* , just as Heenan & Cartman (2000) noted , has sepals inside glabrous and glabrous ovaries and achenes , and by these characters it may be distinguished from other three taxa ; *C. australis* is characterized by its pinnatilobed leaflets and apiculate anthers , and by these characters may be differentiated from both *C. fosteri* and *C. hookeriana* , in which the leaflets are not pinnatilobed and the anthers are not apiculate at apex ; and *C. hookeriana* , in its usually biternate leaves , smaller leaflets which are at apex rounded or obtuse and usually sparsely lobed , and smaller usually oblong anthers , obviously differs from *C. fosteri* , in which the leaves are once ternate , the leaflets are larger , apex acute , and undivided , and the anthers are larger , usually linear in outline . According to my observation on the specimens of the four taxa mentioned above , for the time being in the present revision I would like to adopt the treatment of the New Zealand *Clematis* made by Allan (1961) , maintaining *C. hookeriana* Allan , *C. australis* Kirk , and *C. petriei* Allan all as independent species . However , for the elucidation of the relationships among the four members of the *C. fosteri* complex further study is still needed .

67. *Clematis hookeriana* Allan , Fl. New Zealand 1 : 169. 1961 ; M. Johnson , *Clematis* 165. 1997 ; Grey-Wils. , *Clematis* 72. 2000. Type : New Zealand. No type specimen designated.

C. hookeriana Allan var. *lobulata* Allan , l. c. Type : New Zealand. Port Nicholson , 1928-11-13 , Allan s. n. (holotype).

C. hexasepala auct. non DC. : Hook. f. , Fl. Nov. Zealand. 1 : 6. 1852.

C. colensoi Hook. f. , Handb. New Zealand Fl. 2. 1864 , non Hook. f. , Fl. Nov. Zealand. 1 : 6. 1852.

Fig. 28 : A - C

Woody vines . Branches slender , shallowly 4 - 6-sulcate , glabrous . Leaves twice or once ternate ; leaflets subcoriaceous or chartaceous , broadly ovate , ovate , or rhombic , 0.6 - 1.5 × 0.4 - 1.4 cm , apex rounded or obtuse , sometimes acute , base broadly cuneate or subtruncate , margin sparsely crenate , sometimes entire , 3-lobed to 3-parted , sometimes undivided , on both surfaces glabrous or abaxially below sparsely pilose , basal veins abaxially obscure ; petioles 1.2 - 4 cm long . Staminate cymes axillary , 1 - 5-flowered ; peduncles 1 - 17 mm long ; bracts linear or leaflet-like , 2.5 - 8 mm long . Staminate flower 2 - 3 cm in diam. ; pedicel 0.7 - 2.5 cm long , puberulous ; sepals 5 - 6 , pale yellow , lanceolate-oblong or broadly lanceolate , 11 - 16 × 3 - 6 mm , apex obtuse , on both surfaces appressed-puberulous or inside glabrous ; stamens 4 - 8 mm long , glabrous ; anthers oblong or narrowly oblong , 1.2 - 2 mm long , apex obtuse . Pistillate cymes axillary , 1 -

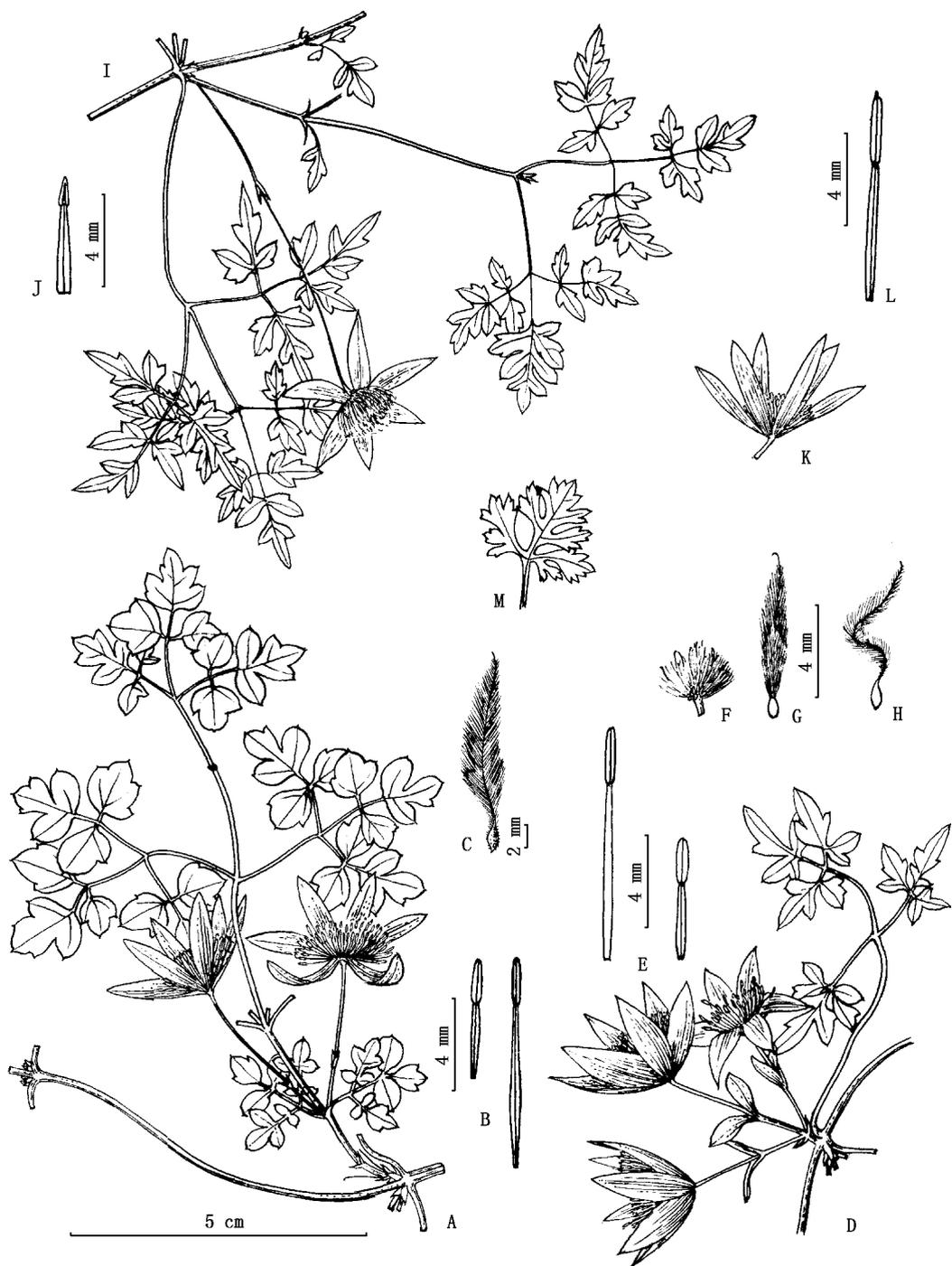


Fig. 28. A - C, *Clematis hookeriana* Allan. A, staminate flowering branch; B, stamens; C, achene (from Stephenson 42). D - H, *C. petriei* Allan. D, staminate flowering branch; E, two stamens (from Gamcock-Jones & Nilsson 61); F, gynoecium; G, carpel (from Melville 5052); H, achene (from Petrie s. n.). I - L, *C. australis* Kirk. I, pistillate flowering branch; J, staminode (from Esler s. n.); K, staminate flower; L, stamen (from Kirk s. n.). M, *C. marmoraria* Sneddon, leaf (from Dodsworth s. n.).

3-flowered; peduncles 2–9 mm long; bracts linear or leaflet-like, 3–8 mm long. Pistillate flower 1.5–2.4 cm in diam.; pedicel 1–4 cm long, puberulous; sepals 5–6, lanceolate-oblong or broadly lanceolate, 8–11 × 3–4.5 mm, apex obtuse, on both surfaces appressed-puberulous, outside on margin densely puberulous; staminodes ca. 3–5; ovary puberulous; style 5–7 mm long, densely villous. Fl. Nov. – Jan.

New Zealand (on shores of Cook Strait and Cook Strait islands).

Specimens examined.

New Zealand. North Island: Port Nichol森, Kirk 502 (GH, US); Wellington, Kirk s. n. (AK); without precise locality, Stephenson 42 (G).

68. *Clematis australis* Kirk, Stud. Fl. New Zealand 3. 1899; Cheesem., Man. New Zealand Fl., ed. 2, 431. 1925; Allan, Fl. New Zealand 1: 168. 1961; M. Johnson, *Clematis* 162. 1997; Grey-Wils., *Clematis* 70. 2000. Type: New Zealand. South Island: Bealy, Kirk Herb. 47 (WELT 26021, lectotype—Allan, 1961).

C. hexasepala DC. var. *rutifolia* Hook. f., Fl. Nov. Zealand. 1: 7. 1852. — *C. colensoi* Hook. f. var. *rutifolia* (Hook. f.) Hook. f., Handb. New Zealand Fl. 3. 1864. — *C. australis* Kirk var. *rutifolia* (Hook. f.) Allan, Fl. New Zealand 1: 169. 1961. Type: New Zealand. Nelson, Bidwill 30 (lectotype, K—Heenan & Cartman, 2000).

Fig. 28: I–L

Woody vine. Branches slender, shallowly 4–8-sulcate, sparsely pubescent, glabrescent or subglabrous. Leaves ternate; leaflets subcoriaceous, ovate or deltoid in outline, 2–4 × 3–6 cm, once or twice pinnate, ultimate lobes petiolulate or sessile, ovate or rhombic, 0.4–2 cm long, pinnatifid or pinnatilobed, on both surfaces nearly glabrous or very sparsely puberulous, basal veins obscure; petioles 0.8–4.5 cm long. Staminate cymes axillary, 1–4-flowered; peduncles 0.1–3 cm long, puberulous; bracts lanceolate-linear, 4–5 mm long. Staminate flower ca. 3 cm in diam.; pedicel 2.2–3.8 cm long, puberulous; sepals 5–6, white or very pale yellow, narrowly lanceolate, 15–20 × 3–5 mm, apex slightly acute, on both surfaces more or less densely puberulous; stamens 6–9 mm long, glabrous; anthers linear or narrowly oblong, apex minutely apiculate. Pistillate cymes arising from axils of reduced or normal leaves on lower or basal part of branch, 1(–3)-flowered; peduncles 0.5–2.4 cm long; bracts triangular or linear, 2–4 mm long. Pistillate flower ca. 2 cm in diam.; pedicel 0.7–3 cm long, puberulous; sepals 4–6, broadly lanceolate, 10–18 × 3–6 mm, apex obtuse or slightly acute, inside glabrous, outside appressed-puberulous; staminodes 4–7, ca. 5 mm long; style ca. 6 mm long, densely villous. Achenes compressed, fusiform or narrowly elliptic, 3–5 × 1.2–2 mm, puberulous; persistent styles 2–3 cm long, plumose. Fl. Nov. – Dec.

New Zealand (South Island: Nelson, Marlborough, and N Canterbury—Webb et al., 1988).

Specimens examined.

New Zealand. Canterbury, Hynes s. n. (AK), Melville & Fisher 5444 (AK, K), 5445 (AK), Petrie 14811 (US), Philipson 10148 (K); Lake Pearson, Kirk s. n. (GH); Lake Rotoiti, Esler s. n. (AK); Nelson, Cook s. n. (AK), Fosberg 30648 (US), Mellor s. n. (AK), Parris & Croxall s. n. (AK), Sexton s. n. (AK), Walker 5036 (US); without precise locality, Travers s. n. (S).

69. *Clematis petriei* Allan, Fl. New Zealand 1: 170, 967. 1961; M. Johnson, *Clematis* 170. 1997; Grey-Wils., *Clematis* 73, figs. 27, 28. 2000; Heenan & Cartman in New Zealand J. Bot. 38: 580, figs. 1A, 3–5. 2000. Type: New Zealand. W Kowai River, West Coast Road, 2200 ft., 1893-01, Petrie s. n. (lectotype, WELT; photo seen—Heenan & Cartman, 2000;

isolecotype, AK!).

Fig. 28 : D – H

Woody vine. Branches slender, obscurely 4-sulcate, puberulous when young, glabrescent at length. Leaves biternate or ternate; leaflets coriaceous, ovate, rhombic-ovate, narrowly ovate or elliptic, 6–16 × 2.5–14 mm, apex obtuse, often minutely mucronate, base subtruncate, broadly cuneate, or cuneate, margin entire or obtusely 1-denticulate, undivided or 3-parted, on both surfaces glabrous or abaxially on midrib with a few hairs, midrib abaxially nearly flat, lateral basal veins obscure; petioles 1–2.8 cm long. Staminate cymes axillary, nearly sessile, 1–6-flowered; bracts triangular, ca. 3 mm long, base connate; bracteoles spatulate or linear, 4–7 mm long. Staminate flower 2–3 cm in diam.; pedicel 5–9 mm long, densely puberulous; sepals 5–6 (–8), yellow-green, lanceolate or broadly lanceolate, 11–16 × 3–7.5 mm, apex obtuse, inside glabrous, outside appressed-puberulous; stamens 5–9 mm long, glabrous; anthers narrowly oblong, 1.5–2.5 mm long, apex obtuse. Pistillate cymes axillary, nearly sessile, 1–3-flowered, similar to staminate cymes. Pistillate flower 1.5–2 cm in diam.; pedicel 7–15 mm long, densely puberulous; sepals 5–6 (–8), yellow green, elliptic-oblong or narrowly oblong, 9–11 × 3.5–5 mm, apex obtuse, inside glabrous, outside appressed-puberulous; staminodes 6–12, 7 mm long; ovary glabrous; style 5–7 mm long, densely villous. Achenes compressed, ovate, 4–5 mm long, glabrous, rimmed; persistent styles ca. 3 cm long, plumose. Fl. Nov. – Dec.

New Zealand (South Island: Marlborough, N Canterbury). In open shrubland; ca. 660 m.

Additional specimens examined.

New Zealand. Canterbury: Arthurs Pass, Bealy, Garnock-Jones & Nilsson 61 (S); Castle Hill, Melville 71-924A, 71-924B (K); Kowai Bridge, Melville 5052 (K); Lake Lyndon, Lovis s. n. (K).

Ser. 4. **Marmorariae** W. T. Wang in Acta Phytotax. Sin. 38:512. 2000. Type: *C. marmoraria* Sneddon.

Low erect subshrubs. Leaves simple, palmately 3-sect. Sepals 5–8, obovate-elliptic. Staminodes 8–13.

One species.

70. *Clematis marmoraria* Sneddon in New Zealand J. Bot. 13:557, figs. 1–4. 1975; Grey-Wils. in Kew Mag. 4(3):116, pl. 82. 1987; Webb et al., Fl. New Zealand 4:1010. 1988; M. Johnson, Klematis 167. 1997; Grey-Wils., Clematis 65, figs. 18, 19. 2000. Type: New Zealand. South Island: Nelson, Hoary Head, Arthur Range, 1973-12-10, Sneddon CHR 259761 (holotype, WELTU).

Fig. 28 : M

Low subshrub, with elongate slender suckers. Aerial stem erect or decumbent, glabrous. Leaves simple, almost glabrous; leaf blade coriaceous or subcoriaceous, broadly ovate or pentagonous-ovate, up to 3 × 4 cm, base cordate or subcordate, 3-sect, segments shortly petiolulate or sessile, 2–3-sect or 2–3-parted, ultimate lobules cuneate, linear, or linear-lanceolate, 1–3-dentate or entire; petioles 5–18 mm long. Cymes axillary, 1-flowered; peduncles (2.5–4.5–7.5) mm long, with pedicels tawny-puberulous; bracts ca. 2 mm long, 3-lobulate; bracteoles narrowly oblong or spatulate, 2–7.7 mm long, undivided or lobulate. Staminate flower 2–3 cm in diam.; sepals 5–8, white, obovate-elliptic, (6–)12(–18) × (3–)6(–10.5) mm, apex rounded or obtuse, inside glabrous, outside puberulous; stamens 5–9 mm long, glabrous; anthers oblong, 1–1.8 mm long, apex minutely apiculate. Pistillate flower similar to staminate flower, but smaller, 1.5–2.4 cm in diam.; staminodes 8–13; ovary puberulous; style densely villous.

Achenes ovate, 3–4 mm long, puberulous; persistent styles 1.5–3 cm long, plumose. Fl. Nov. – Dec.

New Zealand (Nelson). On slopes, in crevices of limestone; 1280–1462 m.

Specimen examined.

New Zealand. NW Nelson: Arthur Range, summit of Hoary Head, J. Smith Dodsworth s. n. (AK).

I have seen only a vegetative specimen (Dodsworth s. n.) of this species. Upon the original description the above floral description is based.

Subsect. 6. **Insidiosae** W. T. Wang in Acta Phytotax. Sin. 38:315, 513. 2000. Type: *C. insidiosae* Baill.

Sect. *Flammula* DC. 10. *Vitalbae* Prantl b. *Saxicolae* Prantl in Bot. Jahrb. 9:260. 1888, p. p. quoad *C. saxicola* Bojer tantum.

Leaves once to thrice pinnate. Inflorescences arising from leaf axils of hornotinous branch. Sepals 4 (–5–6), valvate, those of staminate flower spreading and those of pistillate flower erect, linear or lanceolate-linear, nearly as long as or slightly shorter than stamens, outside on margin velutinous. Pistillate flower having no staminodes.

Two species, endemic to Madagascar.

Ser. 1. **Insidiosae** W. T. Wang in Acta Phytotax. Sin. 38:513. 2000. Type: *C. insidiosae* Baill.

Leaves pinnate, 5-foliolate, sometimes ternate; leaflets (2.5–) 3–6 cm long.

One species.

71. Clematis insidiosa Baill. in Bull. Soc. Linn. Paris 1:331. 1882; W. T. Wang in Acta Phytotax. Sin. 38:315. 2000. Type: Madagascar. Nossi Cumba, 1850-07, Boivin 2116 (lectotype, P!); Mazangay, Bojer s. n. (syntype, P!).

C. saxicola Hils. & Bojer ex Baill. in l. c., nom. nud.

C. edentata Baker in J. Linn. Soc. Bot. 21:318. 1884. — *C. ibarensis* Baker β . *edentata* (Baker) Kuntze in Verh. Bot. Ver. Brand. 26:111. 1885. — *C. ibarensis* ssp. *edentata* (Baker) Viguier & Perrier in Mém. Inst. Sci. Madag., ser. B, 2(2):222. 1949; Perrier in Humbert, Fl. Madag. & Comor. 76 Fam. Ranunculac. 10, fig. 3:1–7. 1950; M. Johnson, Klematis 462. 1997; Grey-Wils., Clematis 156. 2000. Type: Madagascar. Without precise locality, Baron 2297 (holotype, K!; isotypes, BM!, P!).

C. grata Hoffman ex Kuntze in l. c., 1885, pro syn., non Wall., 1831.

C. perrieri Lév. in Repert. Sp. Nov. 7:99. 1909. Type: Madagascar. Ambongo, Perrier s. n. (holotype, P!).

C. perrieri Lév. var. *parvifolia* Lév. in l. c. Type: Madagascar. Malazamba, 1907-05, Perrier s. n. (holotype, P!).

C. bi-perrieri Lév. in Bull. Acad. Intern. Geogr. Bot. 27:4. 1917. Type: Madagascar. Maheranana, 1908-06, Perrier 4903 (holotype, P!).

Fig. 29: A–D

Woody vine. Branches terete, shallowly 14-sulcate, sparsely puberulous, glabrescent. Leaves pinnate, 5-foliolate, sometimes ternate; leaflets chartaceous or subcoriaceous, ovate, (2.5–) 3–6 \times (1.2–) 2–3.6 cm, apex acute, obtuse, or shortly acuminate, base rounded, margin entire, on both surfaces glabrous, or abaxially puberulous, basal veins abaxially slightly prominent; petioles 3.5–6 cm long, glabrous. Staminate cymes axillary, 6–30 cm long, 7–many-flowered, often panicle-like; peduncles 3–9 cm long, puberulous; bracts petiolate, ovate or elliptic, 1–3.5 cm

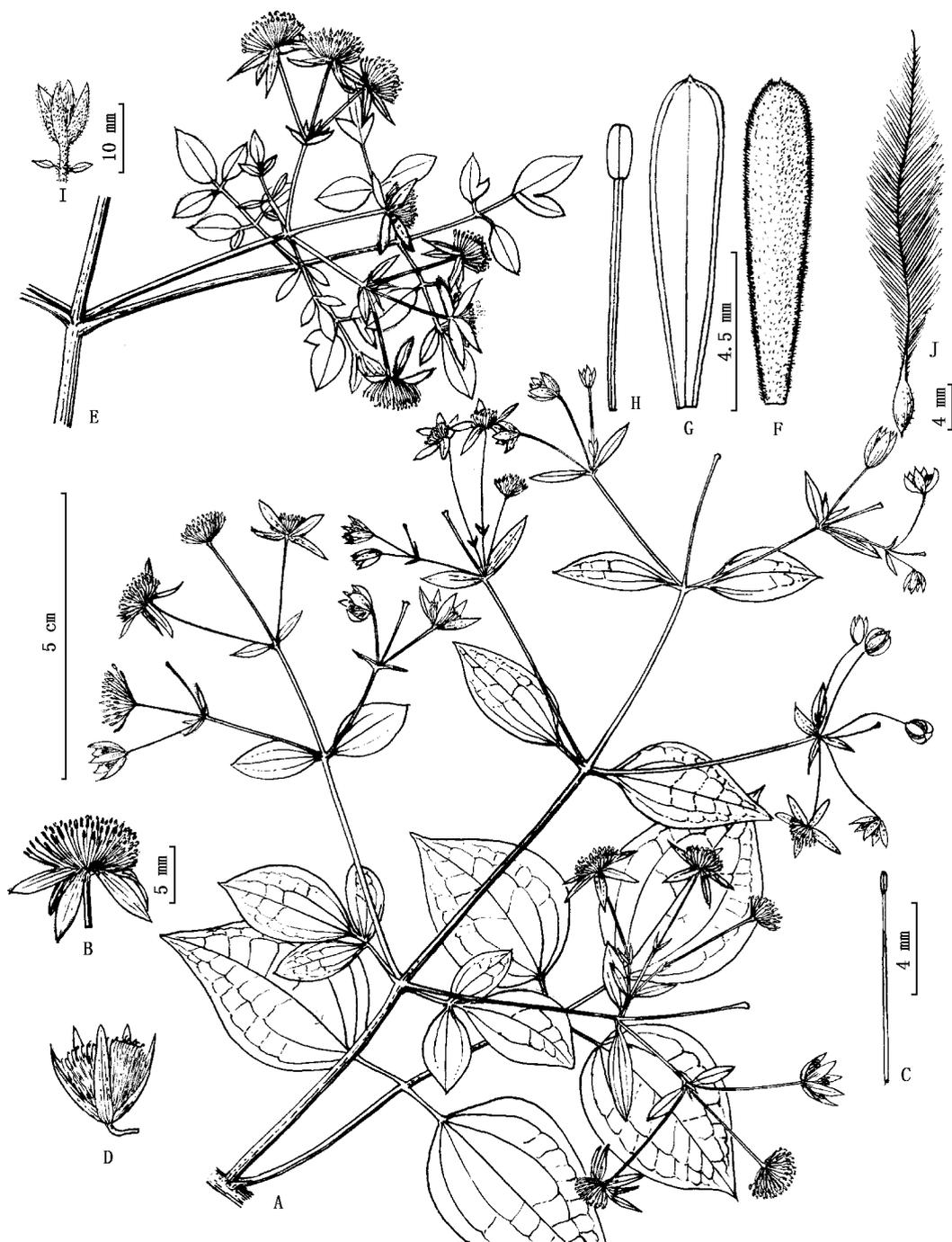


Fig. 29. A - D, *Clematis insidiosa* Baill. A, staminate flowering branch; B, staminate flower; C, stamen (from Baron 2299); D, pistillate flower (from Humbert 20824). E - J, *C. rutoides* W. T. Wang. E, staminate flowering branch; F, sepal outside; G, sepal inside; H, stamen (from Decary 2551); I, pistillate flower (from Decary 8989); J, achene (from Cours 4629).

long. Staminate flower 1.2 – 1.7 cm in diam. ; pedicel 1 – 2.3 cm long, densely puberulous ; sepals 4 – 5 (– 6), spreading, linear or narrowly oblong, 6 – 7 × 1.2 – 2.2 mm, apex obtuse, inside glabrous, outside densely puberulous, margin velutinous ; stamens 5 – 9 mm long, glabrous ; anthers oblong, 0.8 – 1 mm long, apex obtuse. Pistillate cymes axillary and terminal, 4 – 10-flowered ; peduncles 2 – 2.4 cm long, with pedicels densely puberulous ; bracts petiolate, ovate, 0.6 – 1.2 cm long. Pistillate flower ca. 1 cm in diam. ; pedicel 0.5 – 1 cm long ; sepals 4, erect, linear, 9 – 12 × 1.4 – 2 mm, apex acute, inside glabrous, outside velutinous ; staminodes wanting ; ovaries densely pubescent ; styles ca. 7 mm long, densely villous. Achenes compressed, elliptic, ca. 3 × 2 mm, pubescent ; persistent styles 2.5 – 4 cm long, plumose. Fl. Mar. – Jun.

Madagascar. On slopes, in stony places ; 200 – 1000 m.

Additional specimens examined.

Madagascar. Ambatondrazaka, Cours 1414 (P) ; Ampandrandava, Seyrig 38 (P) ; Andranofasika, Dorr 2983 (P) ; Betamla, Perrier 4909 (P) ; Besalampy, Decary 8019, 8063 (P) ; Betroka, Humbert 20824 (P) ; Beraviinseriov, Hildebrandt 3062 (K, P) ; Central Madagascar, Baron 2299 (BM, K, P), 4923 (K) ; Emirna, Bojer s. n. (K) ; Fringalunda, Perrier 617 (P) ; Ilonu, Perrier 4902 (P) ; Isononony, Humbert 12887 (P) ; Makay, Perrier 4896 (P) ; Marandava, Perrier 4917 (P) ; Mitsinjo, Decary 1447 (P) ; Ranchira, Humbert 4969 (P) ; Sakaraha, Decary 14096 (P) ; Tananarivo, Hildebrandt 4035 (K, P) ; Zombity, Humbert 29606, Bosser 19130 (P).

Ser. 2. **Rutoides** W. T. Wang in Acta Phytotax. Sin. 38 : 513. 2000. Type : *C. rutoides* W. T. Wang.

Leaves thrice or twice pinnate ; leaflets numerous, smaller, 0.3 – 2.2 cm long.

One species.

72. Clematis rutoides W. T. Wang in Acta Phytotax. Sin. 38 : 316, fig. 1 : 1 – 6. 2000. Type : Madagascar. Ambovombe, 1924-04-21, Decary 2551 (holotype, P !) ; same locality, Decary 2779, 2901, 3786 (paratypes, P !) ; Hmpanihy, Perrier 4899 (paratype, P !) ; Mt. Vahibory, Perrier 4894 (paratype, P !) ; Plateau Mahufaly, Perrier 4900 (paratype, P !) ; Didy, Cours 4629 (paratype, P !).

C. ibarensis auct. non Baker : Viguier & Perrier in Mém. Inst. Sci. Madag., ser. B, 2 : 222. 1949, p. p. excl. syn. *C. insidiosa* Baill. et *C. saxicola* Hils. & Bojer ex Baill. ; Perrier in Humbert, Fl. Madag. & Comor. 76 Fam. Ranunculac. 8. 1950 ; M. Johnson, Klematis 462. 1997.

Fig. 29 : E – J

Suffrutescent vine. Branches subterete, slender, ca. 2 mm in diam., shallowly 10-sulcate, densely appressed-puberulous. Leaves thrice or twice pinnate ; pinnae 3 – 4-pairs ; leaflets coriaceous or chartaceous, broadly ovate, ovate, or elliptic, 0.3 – 2.2 × 0.2 – 1.4 cm, apex acute or obtuse, often mucronate, base rounded, truncate, or cuneate, margin entire, rarely 1-denticulate, undivided or sometimes 2 – 3-lobed, adaxially subglabrous or sparsely puberulous, abaxially sparsely or densely appressed-puberulous, basal veins abaxially slightly prominent ; petioles 2 – 4.8 cm long, puberulous. Staminate cymes axillary and terminal, 5 – 20-flowered ; peduncles 3.6 – 4.1 cm long, densely puberulous ; bracts foliaceous. Staminate flower 1.8 – 2 cm in diam. ; pedicel 1.6 – 2.4 cm long, densely puberulous ; sepals 4, spreading, oblanceolate-linear, 5 – 9 × 1.5 – 1.8 mm, apex obtuse, inside glabrous, outside densely puberulous ; stamens 6 – 8 mm long, glabrous ; anthers oblong, 0.8 – 1.2 mm long, apex obtuse. Pistillate cymes axillary, 3 – 5-flowered ; peduncles 0.8 – 3 mm long, densely puberulous ; bracts foliaceous. Pistillate flower ca. 6 mm in diam. ; pedicel 5 – 10 mm long, densely puberulous ; sepals 4, erect, lanceolate-linear, ca. 8.5 × 2.5

mm , apex attenuate , inside glabrous , outside appressed-puberulous ; staminodes wanting ; ovaries densely puberulous ; styles ca. 4.6 mm long , densely villous . Achenes compressed , rhombic , $3 - 4 \times 2 - 2.6$ mm , puberulous , narrowly rimmed ; persistent styles 2.7 - 4 cm long , plumose . Fl. Mar. - May .

Madagascar .

Additional specimens examined .

Madagascar. Mahufaly , Bosser 14368 , Keraudren 870 (P) .

Acknowledgements I am most grateful to the directors and curators of AK , BM , G , GH , K , L , LE , LINN , MO , NY , P , S , UPS , and US for kindly inviting me to visit their herbaria or/and sending herbarium material on loan ; to F. Jacquemoud , M. Hecquet , and N. Fumeaux (G) for providing many phototypes and some literature ; to E. K. Cameron (AK) and A. R. Brach (GH) for providing some literature ; to ZHANG Yu-Hua (ZJMA) for providing many photos of the New Zealand *Clematis* ; to LI Liang-Qian , MU Xi-Jin , QIN Hai-Ning , YANG Qin-Er , ZHANG Zhi-Yun , FU De-Zhi , ZHANG Xian-Chun , ZHU Xiang-Yun , LIN Qi , YANG Yong , WANG Zhong-Tao , and Ban Qin for various kinds of help during the preparation of the present revision ; and to SUN Ying-Bao for making the drawings .

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铁线莲属单性铁线莲组修订

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摘要 对毛茛科铁线莲属 *Clematis* L. 的单性铁线莲组 sect. *Aspidanthera* Spach s.l. 进行了全面修订, 确定此组共含 72 种和 15 变种, 这些种被归类于 6 个亚组中, 其中包括首次描述的 1 系、5 种和 2 变种, 以及做出的 2 新等级。对单性铁线莲组的分类学简史和地理分布做了介绍。写出了组、亚组、系的形态特征和地理分布, 分亚组检索表及各亚组的分种检索表, 以及各种植物的形态描述、地理分布、生长环境等, 并附有多幅插图。在研究了此组全部种类的标本之后, 观察到此组几个重要形态特征的演化趋势 (1) 萼片在数目上由 4 枚演变到 8 枚, 在开展方向上由平展到直上展, 在形状上由长圆形到狭条形, 在长度上由比雄蕊稍长到 2 – 4 倍长于雄蕊, 其卷叠式由镊合状到次生的覆瓦状 (2) 花药药隔顶端由不具突起到具短或长的突起 (3) 雌花退化雄蕊的数目由多数到定数、少数, 以至完全消失 (4) 花序自当年生枝的叶腋发生演变到与数叶同自老枝的一腋芽中发出。根据上述演化趋势推断本组各亚组间的亲缘关系如下: subsect. *Dioicae* (34 种, 广布于北美洲和南美洲) 的花构造 (萼片 4 镊合状排列, 平展, 通常呈长圆形, 稍长于雄蕊或近等长, 外面边缘被短绒毛, 雄蕊花药呈长圆形, 药隔顶端无突起, 雌花具多数退化雄蕊;

花序自当年生枝的叶腋发出)与具两性花的威灵仙组欧洲铁线莲亚组 sect. *Clematis* subsect. *Clematis* 的花极为相似,区别主要在于本亚组的花为单性,由此判断 subsect. *Dioicae* 可能是单性铁线莲组 sect. *Aspidanthera* 的原始群,源出于欧洲铁线莲亚组。本组的第二亚组 subsect. *Lasiantha*(2 种,分布于北美西南部)与 subsect. *Dioicae* 在亲缘关系上极为相近,区别只在于其花序或具花当年生枝与数叶一同由老枝的一个腋芽中发出,此亚组当是从 subsect. *Dioicae* 衍生出的一个小群。第三亚组 subsect. *Microphyllae*(7 种,特产澳大利亚)也与 subsect. *Dioicae* 相近缘,但此亚组的萼片变狭长,多呈条形或狭条形,常 2-4 倍长于多少变短的雄蕊,雌花的退化雄蕊数目变少,16-2 枚,根据这些进化特征,推测此亚组也源出于 subsect. *Dioicae*。第四亚组 subsect. *Aristatae*(16 种,分布于澳大利亚、新几内亚及邻近岛屿)与 subsect. *Microphyllae* 在亲缘关系上相近,但本亚组的花药药隔顶端具短或长的突起而不同,根据此进化特征,推测本亚组系由后者演化而出。第五亚组 subsect. *Hexapetalae*(11 种,特产新西兰)的花构造与分布于澳大利亚的 subsect. *Microphyllae* 相似,但其萼片为覆瓦状排列,外面边缘不被短绒毛,在多数种多于 4 枚,为 5-8 枚而不同。据 Godley 的研究,本亚组中的 *C. afoliata* 的花有 4 枚萼片,排成 2 轮,每轮的 2 枚萼片均为近镊合状排列;另外,在 *C. paniculata* 花的 6 枚萼片中,4 枚为覆瓦状排列,其他 2 枚有时内向镊合状排列。从上述情况可见此亚组的萼片覆瓦状卷叠式可能是由镊合状卷叠式演变而来的一种次生现象,并由此推测,此亚组可能与 subsect. *Microphyllae* 相同,也源自美洲的 subsect. *Dioicae*。最后一个亚组 subsect. *Insidiosae*(2 种,特产马达加斯加)的雌花萼片直上展,退化雄蕊完全消失,具有这些进化特征,当是单性铁线莲组的进化群,可能源出自具定数或少数退化雄蕊的 subsect. *Microphyllae*。

关键词 铁线莲属;单性铁线莲组;毛茛科;分类学修订