

Notes on the genus *Correa* (Rutaceae)

Paul G. Wilson

Western Australian Herbarium, Department of Conservation and Land Management,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983

Abstract

Wilson, Paul G. Notes on the genus *Correa* (Rutaceae). Nuytsia 12(1): 89-105 (1998). Nomenclatural notes are provided in preparation for an account of *Correa* (Rutaceae) in Volume 26 of the "Flora of Australia". *Correa eburnea*, *C. backhouseana* var. *orbicularis*, *C. calycina* var. *halmaturorum*, *C. lawrenceana* var. *grampiana*, *C. reflexa* var. *lobata*, *C. reflexa* var. *scabridula*, *C. reflexa* var. *angustifolia*, and *C. reflexa* var. *insularis* are described as new. The following new varietal combinations are made: *C. backhouseana* var. *coriacea* (Paul G. Wilson) Paul G. Wilson, *C. glabra* var. *leucoclada* (Lindl.) Paul G. Wilson, *C. glabra* var. *turnbullii* (Ashby) Paul G. Wilson, *C. lawrenceana* var. *latrobeana* (Hannaford) Paul G. Wilson, and *C. reflexa* var. *speciosa* (Andr.) Paul G. Wilson.

Introduction

Correa Andr. is a member of the tribe Boronieae (Rutaceae), and the sole representative of the subtribe Correinae (Engler 1931). It is endemic to Australia and is one of the most clearly circumscribed genera in the Boronieae, with possibly *Boronia* its closest relative. A revision of the genus by Wilson (1961) did not adequately clarify the complex variation found in some species, which led Anderson (1983) to re-assess the status of all the species in the genus and to propose a number of changes. His doctoral thesis, which is largely a comparison of the chemistry of the various taxa, has not been published, although an indication of some of his conclusions was given in his treatment of the genus in the fourth edition of the "Flora of South Australia" (Anderson 1986). Anderson's work appears to have been largely based on his own collections which, although widespread, were limited in relation to the total distribution of the various species in the genus and therefore failed to take account of the overall variation.

A treatment that I have prepared for the "Flora of Australia" is based entirely on herbarium collections and lacks the authority that it might be accorded had it been supported by the study of field populations, however, the field observations recorded by Anderson have been important in this regard. In this genus such field knowledge is particularly valuable since all species, except for *C. lawrenceana* and *C. baeuerlenii*, appear to hybridize freely when growing together and in *C. lawrenceana* intraspecific variation is common.

During the preparation of the flora account it became apparent that some names required lectotypification, that some varieties were incorrectly placed, and that some additional taxa required recognition. These matters are dealt with below.

Nomenclatural notes and new taxa

Correa alba Andrews, Bot. Repos. 1: t.18 (1798). *Type*: Port Jackson, New South Wales, raised in 1793 from seeds given by J. Banks to J. Vere (*holo*: Bot. Repos. 1: t. 18).

Mazeutoxeron rufum Labill., Voy. Rech. Perouse 2: 12 (1800), Atlas t. 17 (1800). - *Correa rufa* (Labill.) Vent., Jard. Malm. 1: sub. t. 13 (1803). - *C. alba* var. *rotundifolia* DC., Prod. 1: 719 (1824), based on *M. rufum*. *Type*: Near "cap. meridional" [South Cape], Tasmania, February 1793, J.J.H. de Labillardiere (FI, n.v., photographs at PERTH).

Notes. The illustration of the flower of *Mazeutoxeron rufum* in Figure 2 of tab. 17 appears to correspond to the flower of *Correa alba*, and this agrees with Labillardiere's description in which he refers to "quatre petales sont attachees ou fond du calice". I have examined black and white photographs of five sheets in herb. FI which contain specimens determined by Labillardiere as *Mazeutoxeron rufum*. These specimens are largely vegetative. However, one specimen has a flower bud attached and this specimen appears to be *C. backhouseana*. It is therefore likely that the type material of *M. rufum* contains specimens of *C. alba* and of *C. backhouseana*. To determine which specimen agrees with which name requires an examination of the actual material which has not, however, been available. I have therefore not lectotypified the name *M. rufum* but have synonymized it in the manner of De Candolle (1824) and of Bentham (1863).

Correa backhouseana Hook., J. Bot. (Hooker) 1: 253 (1834) as *C. Backhousiana*.

Notes. The specific epithet was originally spelt *backhousiana*, however, the International Code of Botanical Nomenclature (Tokyo Code), 1994, indicates that the correct spelling should be *backhouseana* (Recommendation 60C).

Three varieties are recognized:

- 1 Corolla cream-coloured
- 2 Leaves ovate, sometimes slightly scabridulous above **b. var. coriacea**
- 2: Leaves ovate to broadly ovate or broadly elliptic, smooth above **a. var. backhouseana**
- 1: Corolla red with yellowish tips to lobes
- 3 Leaves ovate **b. var. coriacea**
- 3: Leaves broadly ovate to circular **c. var. orbicularis**

a. *Correa backhouseana* Hook. var. *backhouseana*

Distribution. Occurs in coastal Tasmania, the Bass Strait islands, and in south-eastern coastal Victoria.

Habitat. Usually growing on coastal dunes and among rocks.

b. *Correa backhouseana* var. *coriacea* (Paul G. Wilson) Paul G. Wilson, *comb. nov.*

Correa reflexa var. *coriacea* Paul G. Wilson, Trans. Roy. Soc. South Australia 85: 30 (1961). *Type*: North Pearson Island, South Australia, 14 February 1960, R.L. Specht 2102 (*holo*: AD).

Distribution. Occurs in southern South Australia from the Mt Lofty Ranges westwards, and in south-eastern Western Australia along the Great Australian Bight.

Habitat. Growing on dunes and granite outcrops in South Australia while in Western Australia it is found on the limestone escarpment that borders the Bight.

Notes. On chemical and morphological grounds this variety was considered by Anderson (1986) to be most closely related to *C. glabra*. However, while there is a marked resemblance between the variant of *C. glabra* var. *turnbullii* found in the Murray lands of South Australia and the mainland variant of var. *coriacea*, overall the latter is most similar to *C. backhouseana* var. *backhouseana*, which similarity is reflected in the present taxonomy.

c. *Correa backhouseana* var. *orbicularis* Paul G. Wilson, var. nov.

[*C. rubra* var. *orbicularis* J. Black, *nom. inval.*, Fl. South Australia 2nd edn, 496 (1948)].

Folia late ovata vel circularia, plerumque 1-1.5 cm longa, coriacea, supra laevia, glabra, infra dense tomentosa cum pilis minutis. Flores terminales nec bracteoides. Calyx hemisphaericus, truncatus, ferrugineo-tomentosus. Corolla cylindracea, 2-7 cm longa, tubo rubro, lobis flavidis.

Typus: Mt Thisby, Kangaroo Island, South Australia, 30 December 1965, H. J. Eichler 18565 (*holo:* AD).

Erect shrub c. 1 m high. Leaves broadly ovate to circular, mostly 1-1.5 cm long, coriaceous, smooth and glabrous above, densely tomentose with minute hairs beneath. Flowers solitary and terminal to short branchlets, the terminal leaves not modified to form bracts. Calyx hemispherical, c. 3 mm high, closely rusty-tomentose; margin truncate. Corolla cylindrical, in all 2-3 cm long, red with yellowish lobes. Anthers well exerted, narrowly oblong or narrowing towards apex.

Selected specimens examined. SOUTH AUSTRALIA, Kangaroo Island: Flinders Chase National Park, E.N.S. Jackson 4395 (AD); Dudley Peninsula, B. Overton 16030 (AD); Seal Bay, R.D. Spencer 1033 (MEL); Pennington Bay, D.E. Symon 8498 (AD); Karatta, 24 Jan. 1883, R. Tate (AD).

Distribution. Endemic to Kangaroo Island, South Australia.

Habitat. Growing in coastal heath in sand, often over limestone.

Conservation status. Apparently widespread on Kangaroo Island including Flinders Chase National Park.

Etymology. The varietal epithet *orbicularis* is Latin for circular and refers to the leaf shape. It was originally applied by J.M. Black to specimens from Kangaroo Island, but not validly published.

Notes. This variety hybridizes with *C. reflexa* var. *insularis* and many collections are somewhat intermediate between the two taxa. The anthers are in some specimens narrowly triangular which suggests introgression with *C. reflexa*, although in leaf morphology and in indumentum var. *orbicularis* is closer to *C. backhouseana*.

Correa calycina J.M. Black, Trans. & Proc. Roy. Soc. South Australia 49: 273 (1925).

Distribution. Occurs in a few isolated localities in southern Fleurieu Peninsula, and on Kangaroo Island, South Australia.

Habitat. Usually growing on or near banks of streams.

Notes. The Kangaroo Island population differs significantly from those of the mainland and is described here as a new variety. The two varieties may be distinguished as follows:

Leaves sparsely to moderately densely stellate-hairy below **a. var. calycina**
 Leaves densely stellate-hairy below **b. var. halmaturorum**

a. *Correa calycina* J.M. Black var. *calycina*

Distribution. Occurs in a few isolated localities in southern Fleurieu Peninsula, South Australia.

b. *Correa calycina* var. *halmaturorum* Paul G. Wilson, var. nov.

Ramuli valde ferrugineo flocculosi. Folia oblongo-elliptica, plerumque 2-4 cm longa, marginibus leviter recurva, supra scabridula, infra dense hinnuleo- vel ferrugineo-stellata. Calycis lobi lanceolato-acuminati.

Typus: De Mole River, Kangaroo Island, South Australia, 13 August 1985, *G. Jackson* 1760 (*holo:* AD; *iso:* CANB, MEL).

Branchlets strongly rusty-flocculose. *Leaf lamina* oblong-elliptic, the margin slightly recurved, mostly 2-4 cm long, obtuse, scabridulous above, densely fawn- to rusty-stellate-hairy below. *Flowers* subsessile. *Calyx lobes* lanceolate-acuminate.

Selected specimens examined. SOUTH AUSTRALIA: De Mole River, *K. Clipstone* 852089 (AD); mouth of De Mole River, *B.M. Overton* 390 (AD).

Distribution. Recorded only from the De Mole River, Kangaroo Island, South Australia.

Habitat. Growing along river banks in deep damp soil overlying shale in *Eucalyptus cladocalyx* forest.

Conservation status. Possibly at risk since the variety is only known from a small area along one river.

Etymology. The varietal epithet is derived from the Greek word *halma*, a leap, and this evidently gave rise to *Halmaturus*, a name apparently first used by J.C.W. Illiger in 1811 for a genus of kangaroo-like marsupial. Later the epithet *halmaturorum* "of the kangaroos", was applied by F. Mueller to certain plants endemic to Kangaroo Island.

Correa eburnea Paul G. Wilson, *sp. nov.*

Folia elliptica vel ovata, integra, plerumque 3-5 cm longa, chartacea, laevia, supra glabra in statu maturo, infra minute eburneo tomentosa, obtusa, basi rotundata vel leviter cordata. Bractea circularia vel cordata, 1.2-2 cm longa, ad cymam terminalem adpressam. Flores nutantes. Calyx cupulatus, undulatus et 4-dentatus vel lobis late triangularibus ad 1.5 mm longis ornatis, cremeo tomentosus. Corolla cylindracea, 18-25 mm longa, viridis.

Typus: Deep Creek Conservation Park, Fleurieu Peninsula, South Australia, 4 August 1991, *R.J. Bates* 25726 (*holo*: AD).

Shrub 1-4 m high. *Branches* slender and sometimes flexuose towards apex, closely rusty-tomentose. *Leaves* shortly petiolate; lamina elliptic to ovate, entire, mostly 3-5 cm long, papery, flat, smooth; sparsely pubescent above when young, glabrous at maturity, minutely cream-tomentose beneath, obtuse, rounded to slightly cordate at base. *Peduncles* axillary, slender, bearing a pair of terminal rounded to cordate bracts 1-2.5 cm long appressed to a 1-5-flowered cyme. *Flowers* nodding; pedicel *c.* 2 mm long, with a pair of small linear caducous bracteoles. *Calyx* cup-shaped, in all 4-7 mm high, undulate and 4-dentate or with broadly triangular lobes to 1.5 mm long, closely cream-tomentose outside, sparsely tomentose within at margin. *Corolla* cylindrical, 18-25 mm long, green with close green tomentum. *Anthers* shortly or prominently exserted, narrowly triangular, *c.* 3 mm long, margins slightly reflexed. (Figure 1)

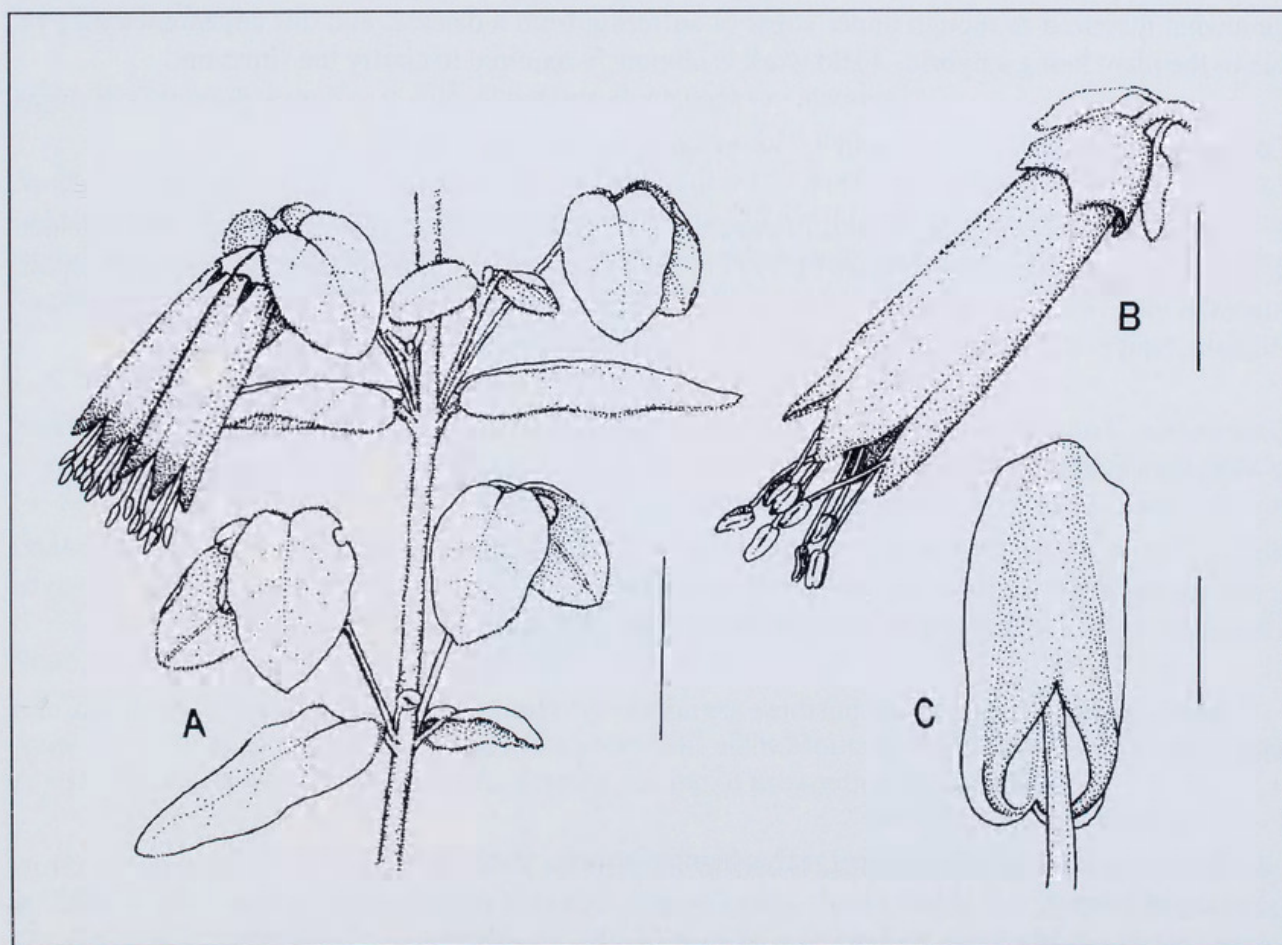


Figure 1. *Correa eburnea* A - flowering branch, B - flower, C - anther, abaxial view. Scale bars: A (20 mm), B (10 mm), C (1 mm). Drawn from *R.J. Bates* 25726.

Selected specimens examined. SOUTH AUSTRALIA: Deep Creek Conservation Park, *R.J. Bates* 25726 (AD); 2 miles [c. 3 km] from Goolwa, Jan. 1934, *J.B. Cleland* (AD); Boat Harbour Creek, *Hj. Eichler* 14426 (AD); Callawonga Creek, 25 Nov. 1953, *F.M. Hilton* (AD); E of Tunkalilla Creek, *D.N. Kraehenbuehl* 5249 (AD); Deep Creek area, *R. Schodde* 1139 (AD).

Distribution. Found at or near the south coast of Fleurieu Peninsula at Encounter Bay, South Australia.

Habitat. Where such information is provided, all collections except one are recorded as growing on banks of damp creeks.

Conservation status. This species is found over a small area, only one of the localities being in a Conservation Park. Therefore it is probably at risk.

Etymology. The epithet *eburnea* is derived from the Latin *eburneus*, meaning ivory-white, referring to the colour of the lower leaf surface.

Notes. This taxon was referred to *Correa reflexa* by Black (1924, 1948) and by Ashby (1939), but thought by Wilson (1961) to be possibly a hybrid between *C. calycina* and *C. reflexa*. Anderson (1986) also indicated that it probably had a hybrid origin and suggested a close relationship with *C. calycina*. The herbarium material referred to this species is somewhat variable in its floral features although all specimens obviously belong to the same taxon. The specimens show no sign of intergrading with any of the other species that are found in the Fleurieu Peninsula but they have the appearance of being somewhat distorted as though under stress or suffering from a disease, and this appearance may be due to the plant being a hybrid. Field work is obviously required to clarify the situation.

Correa glabra Lindl. in T.L. Mitchell, Three Exped. E. Australia 2: 48 (1838).

C. speciosa race *glabra* (Lindl.) Benth., Fl. Austral. 1: 355 (1863). - *C. speciosa* var. *glabra* (Lindl.) Maiden & Betche, Census New South Wales Pl. 117 (1916). - *C. rubra* var. *glabra* (Lindl.) J. Black, Fl. South Australia 340 (1924). - *C. reflexa* var. *glabra* (Lindl.) Court, Victorian Naturalist 73: 175 (1957). *Type:* Near Hillston, New South Wales, 21 April 1836, T.L. Mitchell 84 (*holo:* CGE; *?iso:* MEL).

Distribution. Found in south-eastern Queensland, New South Wales, and western Victoria, westwards to Fleurieu Peninsula in South Australia.

Notes. The presumed isotype of *C. glabra* in herb. MEL, which is mounted on the same sheet as, and is almost identical to, that of the presumed isotype of *C. leucoclada*, has the lower surface of leaves tomentose while the holotype (CGE) has almost glabrous leaves.

Three varieties are recognized but these are not always clearly distinguishable since they grade into each other.

- 1 Flowers pale green or yellow
- 2 Leaves glabrous or glabrescent; calyx hemispherical, glabrous
or glabrescent **a. var. *glabra***
- 2: Leaves tomentose below; calyx cup-shaped to shortly cylindrical,
tomentose **b. var. *leucoclada***
- 1: Flowers red with green lobes **c. var. *turnbullii***

a. *Correa glabra* Lindl. var. *glabra*

Distribution. Found in south-eastern Queensland, New South Wales, and central and western Victoria.

Habitat. Growing principally in rocky habitats and along watercourses.

Notes. A widespread and polymorphic taxon that in places hybridizes with varieties of *C. reflexa*.

The plant found in the Torrens Gorge of the Mt Lofty Range in South Australia, that is usually referred to this taxon, appears to be a hybrid between the local variants of var. *turnbullii* and var. *leucoclada*, both of which grow in the area.

b. *Correa glabra* var. *leucoclada* (Lindl.) Paul G. Wilson, *comb. nov.*

C. leucoclada Lindl. in T.L. Mitchell, Three Exped. E. Australia 2: 39 (1838). - *C. speciosarace leucoclada* (Lindl.) Benth., Fl. Austral. 1: 355 (1863). - *C. speciosa* var. *leucoclada* (Lindl.) Maiden & Betche, Census New South Wales Pl. 117 (1916). *Type:* Summit of Goulburn Range [Ural Range], New South Wales, 29 April 1836, T.L. Mitchell 106 (*holo:* CGE; *?iso:* MEL).

[*C. rubra* var. *megacalyx* J. Black, *nom. inval.*, Fl. South Australia 2nd edn, 496 (1948)].

Distribution. Found in South Australia in the southern Mt Lofty Ranges and also in eastern and central New South Wales.

Habitat. Generally growing in hilly situations along banks of streams.

Notes. The holotype of *C. leucoclada* in herb. CGE is dated 29 April 1836 while the presumed isotype in MEL, which bears the same collector's number, is dated 27 April 1836. Mitchell, in the account of his expedition, records collecting the plant near the summit of the Goulburn Range [= Ural Range] whereas the isotype in MEL has the locality Macquarry Range [= Cocoparra Range].

c. *Correa glabra* var. *turnbullii* (Ashby) Paul G. Wilson, *comb. nov.*

C. turnbullii Ashby, Proc. Linn. Soc. Lond. 151: 220 (1939). - *C. rubra* var. *turnbullii* (Ashby) J. Black, Fl. South Australia 2nd edn, 496 (1948). *Type:* Near Monarto South, South Australia, E. Ashby (*holo:* AD).

C. schlechtendalii Behr, Linnaea 20: 630 (1847). *Type:* "In steinigen Scrubgegenden" [Stony scrubland], South Australia, June-August, H. Behr 139 (*holo:* HAL).

Distribution. Found in South Australia in the rocky hills of the Mt Lofty and Flinders Ranges, the plains of the Murray Lands, and in the north-western portion of the south-eastern region.

Notes. Anderson (1986) indicated that the plant found in the Mt Lofty and Flinders Ranges is different from that found on the plains of south-eastern South Australia. He included the "ranges" plant under *C. glabra* and the "plains" plant under *C. schlechtendalii*, noting, however, that the latter species should be treated as a variety of *C. glabra*. The plant from south-eastern South Australia generally has relatively small leaves and small flowers with spreading corolla lobes, although in cultivation the leaves

and flowers are larger. The Mt Lofty Ranges plants have larger leaves and larger flowers with more cylindrical corollas. The Flinders Ranges plants most closely resemble those from the south-east. Since the total variation of the plants from the ranges encompasses that found on the plains it seems inappropriate to distinguish them taxonomically.

The name *C. schlechtendalii* is based on a specimen whose precise origin is uncertain, however, it most closely resembles the variant of var. *turnbullii* that is found in the Mt Lofty Ranges.

Correa lawrenceana Hook., J. Bot. (Hooker) 1: 254 (1834) as *C. Lawrenciana*.

Distribution. Found in eastern New South Wales, Victoria, and Tasmania.

Habitat. Typically a montane species.

Notes. The original spelling of the specific epithet, *lawrenciana*, is corrected to *lawrenceana* in accordance with recommendation 60c of the International Code of Botanical Nomenclature (Tokyo Code) (1994).

I have not observed any collection of *C. lawrenceana* that is a hybrid with any other species of *Correa* although hybridization or intergradation between varieties of *C. lawrenceana* is common.

Seven varieties are recognized within *C. lawrenceana* but since most grade into each other their delineation is imprecise.

- 1 Leaves narrowly elliptic, 2-4 cm long, glabrous to thinly rusty-tomentose below; corolla green **a. var. lawrenceana**
- 1: Leaves broadly elliptic to broadly cordate, mostly cream- to rusty-tomentose below; corolla cream to green or red
- 2 Calyx glabrescent, green, 9-12 mm long including the lanceolate acuminate lobes of 3-4 mm **h. var. genoensis**
- 2: Calyx densely fawn- or rusty-tomentose; margin truncate to shortly undulate-lobed or with linear lobes
- 3 Leaves broadly ovate to cordate, rounded at base
- 4 Calyx 5-10 mm long; bracteoles subtending calyx **g. var. macrocalyx**
- 4: Calyx 4-7 mm long; bracteoles at base of pedicel
- 5 Calyx 4-5 mm long, undulate or dentate on margin **f. var. cordifolia**
- 5: Calyx 4-7 mm long, with prominent linear lobes **b. var. latrobeana**
- 3: Leaves elliptic or ovate, cuneate at base
- 6 Calyx shallowly hemispherical, c. 2 mm high, sparsely to moderately densely stellate-hairy; corolla green **e. var. glandulifera**
- 6: Calyx hemispherical to cup-shaped, 3-7 mm high, densely tomentose; corolla green to cream or red
- 7 Leaves coriaceous, to 4 cm long, velvety beneath; corolla broadly cylindrical, cream-velvety; calyx robust, deeply cup-shaped, 5-7 mm long, rusty-tomentose **d. var. grampiana**

- 7: Leaves papery, to 9 cm long, tomentose beneath; corolla cylindrical, cream to red; calyx 3-7 mm high
- 8: Leaves narrowly elliptic, 4-6 cm long; peduncle and pedicel slender; corolla red c. var. **rosea**
- 8: Leaves elliptic to broadly elliptic, 4-9 cm long; peduncle and pedicel short and thick; corolla yellowish green (rarely reddish) b. var. **latrobeana**

a. *Correa lawrenceana* Hook. var. *lawrenceana*

C. lawrenceana var. *glabra* Hook. f., *nom. illeg.*, Fl. Tasm. 1: 62 (1855), including the type of *C. lawrenceana*.

C. ferruginea Backh. in J. Ross, Hobart Town Alm. & Van Diemen Land Ann. 80 (1835). *Type*: Mt Wellington, Tasmania, *J. Backhouse* (n.v.).

C. ferruginea Gunn ex Hook., *nom. illeg.*, Comp. Bot. Mag. 1: 276 (1836), later homonym. - *C. lawrenceana* var. *ferruginea* Hook. f., Fl. Tasmania 1: 62 (1855). *Type*: Hobart Town, Tasmania, *R. Gunn* 557 [=457] (*holo*: K, *Gunn* 457).

Distribution. Found in Tasmania, including King Island, Bass Strait.

Habitat. Found principally in montane forest.

Note. The type of *C. lawrenceana* has almost glabrous leaves while the type of *C. ferruginea* is described as having leaves that are rusty-tomentose beneath which is the more widespread condition in Tasmania.

b. *Correa lawrenceana* var. *latrobeana* (F. Muell. ex Hannaford) Paul G. Wilson, *stat. nov.*

C. latrobeana F. Muell. ex Hannaford, Jottings in Australia 40 (1856). *Type*: Delatite River, Victoria, 20 March 1853, *F. Mueller* (*lecto*: MEL), *fide* P.G. Wilson (1961).

Distribution. Occurs in eastern Victoria and the Southern Tablelands of New South Wales.

Habitat. Usually found growing in open eucalypt forest.

Notes. This variety encompasses several intergrading variants, it is therefore to be distinguished more by the absence of those features that characterize the other varieties than in the possession of any particular attribute of its own. A variant found in the Otway Range, Victoria, is stated to take the form of a tree to 16 m high (Floyd 1989), while in the mountains of East Gippsland is found a shrubby red-flowered variant which has large densely flocculose calyces and prominent linear calyx lobes.

c. *Correa lawrenceana* var. *rosea* Paul G. Wilson, Trans. Roy. Soc. South Australia 85: 48 (1961). *Type*: Geehi River, Alpine Way, New South Wales, 10 April 1958, *J. Vickery* (*holo*: NSW 51508).

Distribution. Occurs in the Snowy Mountains of New South Wales.

Habitat. Usually found in wet sclerophyll forest.

Notes. This variety grades into the alpine element of var. *latrobeana*. It may be recognized by its narrowly elliptic leaves, narrow red flowers, slender peduncles, and slender pedicels that have minute caducous bracteoles.

d. *Correa lawrenceana* var. *grampiana* Paul G. Wilson, *var. nov.*

Folia coriacea, elliptica, obtusa, plerumque 2-4 cm longa, 1-1.7 cm lata, supra glabra, infra pilis hinnuleis velutinosae. Flores solitarii; pedunculus recurvatus, 2-5 mm longus; pedicellus c. 6 mm longus. Calyx validus, profunde cupulatus, 5-7 mm longus, ferruginoso tomentosus, manifeste undulatus vel 4-dentatus. Corolla late cylindracea, 15-25 mm longa, tomento luteo-brunneo velutinosae.

Typus: Saddle c. 0.8 km south-south-east of summit of Mt William, Victoria, 8 September 1986, D.E. Albrecht 2774 (*holo:* MEL).

Shrub to 2.5 m high. *Leaves* coriaceous, elliptic, obtuse, mostly 2-4 cm long, 1-1.7 cm wide, glabrous above, velvety below with fawn-coloured hairs. *Flowers* solitary, axillary; peduncle recurved, 2-5 mm long; pedicel c. 6 mm long, medially bracteolate with small (c. 2 mm long) caducous filamentous bracteoles. *Calyx* robust, deeply cup-shaped, 5-7 mm long, ferruginous-tomentose, prominently undulate or 4-dentate on margin. *Corolla* broadly cylindrical, 15-25 mm long, velvety with thick cream to yellow-brown tomentum.

Selected specimens examined. VICTORIA: Mt William, The Grampians, B.G. Briggs 2889 (NSW); Mt Langi Ghiran, 9.5 miles [c. 15 km] E of Ararat, 14 Apr. 1970, A.E. Millar (MEL); Mt Rosea, The Grampians, 13 Sep. 1961, M.E. Phillips (CANB); Major Mitchell Plateau, The Grampians, 8 Dec. 1962, J.H. Willis (MEL).

Distribution. Occurs in western Victoria in The Grampians and on Mt Langi Ghiran, c. 15 km east of Ararat.

Habitat. A montane plant growing among rocks.

Etymology. The varietal epithet refers to the principal area of distribution, The Grampians of Victoria.

Notes. The small thick coriaceous leaves and the broadly cylindrical corolla with a velvety indumentum make this a distinctive variety. Presumably due to its isolation it does not grade into any other variety.

e. *Correa lawrenceana* var. *glandulifera* Paul G. Wilson, Trans. Roy. Soc. South Australia 85: 49 (1961). *Type:* Springbrook, Queensland, 21 September 1929, C.T. White 6274 (*holo:* BRI).

Distribution. Occurs in the mountains near the north coast of New South Wales and in the Macpherson Range of far south-eastern Queensland.

Habitat. Recorded as growing on the margin of rainforest.

f. *Correa lawrenceana* var. *cordifolia* Paul G. Wilson, Trans. Roy. Soc. South Australia 85: 47 (1961). *Type:* Mt Dromedary, New South Wales, E.F. Constable (*holo:* NSW 26186).

Distribution. Found near the south coast of New South Wales inland to near Braidwood and the far east of Victoria.

Habitat. Recorded as often growing along creeks in rainforest.

g. *Correa lawrenceana* var. *macrocalyx* (Blakely) Paul G. Wilson, Trans. Roy. Soc. South Australia 85: 48 (1961). - *C. macrocalyx* Blakely, Proc. Linn. Soc. New South Wales 54: 681 (1929). *Type:* Patonga Creek, New South Wales, October 1923, *D.W.G. Shiress & W.F. Blakely* (*holo:* NSW).

Distribution. Found in the Taree-Kendle area of eastern New South Wales.

Habitat. Usually recorded as growing on the margin of montane rainforest.

h. *Correa lawrenceana* var. *genoensis* Paul G. Wilson, Trans. Roy. Soc. South Australia 85: 50 (1961). *Type:* Genoa River, Victoria, September 1860, *F. Mueller* (*holo:* MEL).

Distribution. Found along the Genoa River, eastern Victoria.

Habitat. A strictly riparian plant.

Correa reflexa (Labill.) Vent., Jard. Malm. 1: sub t. 13 (1803). - *Mazeutoxeron reflexum* Labill., Voy. Rech. Perouse 2: 66 (1800). *Type:* "La baie de l'Aventure" [Adventure Bay], Tasmania, February 1793, *J.J.H. de Labillardiere* (*n.v.*).

Notes. A very variable species. Seven varieties are here recognized but these cannot easily be delineated as each grades into one or more of the other varieties and each hybridizes with those *Correa* species with which it comes in contact.

In preparing the following treatment I have been influenced by Anderson (1983) who indicated that the typically red-flowered plants differ chemically from those that are typically green-flowered. In practice the separation is far from clear and the distinction between var. *reflexa* and var. *speciosa* is in many cases difficult to discern, possibly due to hybridization between the two varieties. In addition, each of these varieties contains local variants which from their morphological characters alone could be recognized as discrete taxa. The difficulties are compounded by apparent hybrid swarms that cover large areas and which may themselves warrant nomenclatural recognition.

- 1 Corolla green to yellow
 - 2 Calyx with four deeply triangular lobes **b. var. lobata**
 - 2: Calyx truncate or dentate
 - 3 Flowers drooping, clasped between two reflexed foliaceous bracts **a. var. reflexa**
 - 3: Flowers erect to drooping, not obviously clasped by foliaceous bracts
 - 4 Calyx rusty-tomentose; anthers scarcely exserted **g. var. nummulariifolia**
 - 4: Calyx fawn-tomentose; anthers prominently exserted **f. var. insularis**
- 1: Corolla red with green or pale lobes
 - 5 Leaves narrowly oblong; calyx 4-dentate and with 4 broadly triangular lobes **e. var. angustifolia**
 - 5: Leaves narrowly to broadly ovate or cordate; calyx truncate or 4-dentate
 - 6 Flowers drooping, clasped between two reflexed foliaceous bracts **a. var. reflexa**
 - 6: Flowers erect to drooping, not clasped between reflexed foliaceous bracts

- 7 Corolla broadly cylindrical or swollen (New South Wales, eastern & central Victoria) **c. var. speciosa**
 7: Corolla trumpet-shaped (South Australia, western Victoria) **d. var. scabridula**

a. *Correa reflexa* (Labill.) Vent. var. *reflexa*

Distribution. Found in the mountains of south-east Queensland, eastern New South Wales, and eastern Victoria; and in the coastal and near coastal areas of southern New South Wales, Victoria, far south-east South Australia, and eastern Tasmania.

Habitat. Often growing in damp gullies and rainforest.

Notes. A variable taxon. On the north-east coast of Tasmania is found a variant with small leaves that are rounded at the base and almost glabrous beneath; it appears to grade to the north and south into typical var. *reflexa*. In east Gippsland, the Snowy Mountains, and in the Southern Tablelands of New South Wales the flowers are sometimes dull red and green and are broader than is usual in var. *reflexa*. On the north coast of Tasmania is found a variant with red and green flowers that otherwise differs little from the more widespread green-flowered plant.

In far south-western Victoria is found a variant with green flowers and with thin, sessile, cordate and dentate leaves that are sparsely pubescent beneath. It was on this variant that the name *C. cordifolia* was based. It intergrades with both var. *speciosa* and *C. alba* var. *pannosa*. The variant found in far south-eastern South Australia is a red-flowered plant that is intermediate in morphology between var. *scabridula* and the south-western Victorian variant of var. *reflexa*.

On the east side of Port Phillip Bay and near Port Campbell are found plants that appear to be derived from an introgression between var. *reflexa* and *C. alba* var. *alba*.

b. *Correa reflexa* var. *lobata* Paul G. Wilson, var. nov.

Folia chartacea, ovata, ad basim rotundata vel subcordata, plerumque 2-4.5 cm longa, crenulata, supra scabridula, infra hinnuleo stellata. Pedunculus gracilis; bractae foliaceae ad cymam appressam. Calyx obconicus, ad 16 mm longus, sparse stellatus, in lobos triangulares divisus in quarta vel dimidium parte superiore. Corolla anguste cylindracea, ad 35 mm longa, omnino pallido viridis.

Typus: Headwaters of Bunyip River, 10 km north-east of Gembrook, Victoria, 27 June 1959, T.B. Muir 774 (holo: MEL).

Shrub to 2 m high. *Leaves* papery, ovate, rounded or subcordate at base, mostly 2-4.5 cm long, crenulate on margin, scabridulous above, moderately densely fawn-stellate-hairy below. *Flowers* terminal to slender axillary peduncle, the terminal leaves clasping a cluster of flower buds. *Calyx* sparsely stellate-hairy, obconic, to 16 mm long, the upper quarter to half variably divided into triangular acuminate lobes, sometimes with short intermediate lobes. *Corolla* narrowly cylindrical, to 35 mm long, entirely yellow green. *Anthers* narrowly ovate, c. 3 mm long.

Selected specimens examined. VICTORIA: S of Avonsleigh, Dandenong Ranges, M.G. Corrick 5040 (MEL); 3 km W of Powelltown, D. Foreman 1037 (CANB); Gembrook, 16 Aug. 1917, E.H. Ising (AD); Cranbourne, J.H. Ross 2594 (MEL).

Distribution. Restricted to the Dandenong and Powelltown area of eastern Victoria.

Habitat. Recorded as growing in eucalypt forest and heathland in hilly terrain.

Etymology. The varietal epithet is derived from the Latin word *lobatus* which means lobed and refers to the prominent lobes of the calyx.

Notes. This variety is similar to var. *reflexa*, into which it grades. Var. *lobata* differs most noticeably from var. *reflexa* in having a deeply lobed calyx.

c. *Correa reflexa* var. *speciosa* (Donn ex Andr.) Paul G. Wilson, *comb. nov.*

Correa speciosa Donn ex Andr., Bot. Rep. 10: t. 653 (1812). - *Antommarchia rubra* Colla ex Presl, *nom. illeg.*, Rep. Bot. Syst. 1: 185 (1834), based on preceding. - *Antommarchia speciosa* (Andr.) B.D. Jackson, *pro syn.*, *nom. inval.*, Index Kew. 1: 157 (1895). *Type:* Bot. Rep. 10: t. 653.

Correa cardinalis F. Muell. ex Hook., Bot. Mag. 92: t. 4912 (1 Apr. 1856). - *C. speciosa* var. *cardinalis* (F. Muell. ex Hook.) J. Stirling, Proc. Linn. Soc. New South Wales 11: 1058 (1887). - *C. speciosa* f. *cardinalis* (F. Muell. ex Hook.) Siebert & Voss, Vilm. Blumengarten. 3rd edn, 1: 170 (1896). - *C. reflexa* var. *cardinalis* (F. Muell. ex Hook.) Court, Victorian Naturalist 73: 175 (1957). *Type:* Bot. Mag. 92: t. 4912.

Distribution. Coastal New South Wales, south of Port Stephen, and south-east and central Victoria.

Habitat. Growing on coastal dunes, sand, or on sandstone in dry sclerophyll woodland.

Notes. The autonym *Correa speciosa* var. *speciosa* was established by the publication of *C. speciosa* var. *nummulariifolia* Hook.f. (1855) and therefore antedates the name *C. speciosa* var. *cardinalis* (Hook.) J. Stirling (1887). Since an autonym has priority over the name by which it was created, it would in any event have priority over var. *cardinalis* if the two were to be recognized as synonyms.

Near Ulladulla, New South Wales, is found a variant with a pale yellow corolla which appears to grade into the common red variant and which is possibly the result of an intergradation between var. *speciosa* and the green-flowered var. *reflexa* that is found further inland.

Near Sydney plants have been collected that appear to be intermediate between var. *reflexa* and var. *speciosa*. Hybrids with *C. alba* var. *alba* are found in many coastal areas. Var. *speciosa* also grades into *C. reflexa* var. *scabridula* wherever the two varieties grow near to each other.

d. *Correa reflexa* var. *scabridula* Paul G. Wilson, *var. nov.*

Folia coriacea, ovata, c. 1.5 cm longa, ad basim rotundata vel leviter cordata, margine leviter recurva et irregulariter undulata, supra scabridula, infra ferrugineo-stellata. Calyx hemisphericus, laxe tomentosa pilis rubiginosis. Corolla buccinata, 1.5-2(3) cm longa, rubra vel aurantiaca lobis pallidioribus.

Typus: Coorong Road near Salt Creek, c. 60 km SSE of Meningie, South Australia, 4 May 1958, D.J.E. Whibley 193 (*holo:* AD).

Erect or spreading *shrub* to 0.5 m high. *Lamina* coriaceous, ovate, *c.* 1.5 cm long, rounded to slightly cordate at base, somewhat recurved and irregularly undulate on margin, scabridulous above, moderately densely rusty-stellate-hairy below; petiole 2-3 mm long. *Calyx* hemispherical, loosely stellate-tomentose with rusty hairs. *Corolla* trumpet-shaped, 1.5-2(3) cm long, red to orange with paler lobes. *Anthers* shortly exserted, narrowly oblong, rounded at apex.

Selected specimens examined. SOUTH AUSTRALIA: 4 km NE of MacLaren Flat, *A.W. Bell* 200 (AD); Mt Boothby Conservation Park, *E.N.S. Jackson* 5699 (AD); 3 km NW of Coomandook, *M.C.R. Sharrad* 958 (AD).

VICTORIA: Little Desert, *M.G. Corrick* 6281 (MEL); road to Flat Rock, near Mt Zero, The Grampians, 19 Mar. 1961, *M.E. Phillips* (CANB).

Distribution. Found from the Mt Lofty Ranges in South Australia to eastern Victoria.

Habitat. Generally growing as an understorey in mallee heathland.

Etymology. The varietal epithet is derived from the Latin word *scabridulus*, which is the diminutive of *scabridus* and means minutely scabrid, referring to the upper surface of the leaves.

Notes. In South Australia this variety hybridizes with *C. glabra* var. *turnbullii* while in The Grampians of Victoria it hybridizes with *C. reflexa* var. *angustifolia*. In Victoria it grades eastwards into var. *speciosa* and collections from the intermediate zone cannot be precisely determined. In far south-west Victoria it forms introgressive populations involving both var. *reflexa* and *C. alba*. These populations were treated as a variant of var. *reflexa* by Wilson (1961) and by Anderson (1986) although in both cases with reservations.

e. *Correa reflexa* var. *angustifolia* Paul G. Wilson, var. nov.

Folia anguste oblonga, 15-30 mm longa, obtusa, leviter recurva, supra scabridula, infra dense ferrugineo flocculosa. Calyx late obconicus vel campanulatus, breviter 8-lobatus (lobis sepalinis linearibus ad 1.5 mm longis, lobis petalinis triangularibus ad 1 mm longis), ferrugineo tomentosus, *c.* 5 mm altus ad basim loborum. Corolla cylindracea, 3-4 cm longa, rubra, lobis viridibus.

Typus: Victoria Range, The Grampians, Victoria, 23 February 1957, *M.M. & P.E. Finck & A.C. Beauglehole* ACB 4038 (*holo:* MEL; *iso:* MEL).

Shrub to 1 m high. *Leaves* narrowly oblong, 15-30 mm long, obtuse, somewhat recurved, scabrid above, densely rusty-flocculose below. *Calyx* broadly obconic or bell-shaped, shortly 8-lobed (sepaline lobes linear, to 1.5 mm long; petaline lobes triangular, to 1 mm long), with loose rusty tomentum, *c.* 5 mm high to base of lobes, sometimes slightly folded towards margin. *Corolla* cylindrical, 3-4 cm long, red with pale green lobes. *Anthers* obtuse.

Selected specimens examined. VICTORIA: Redmans Gap, The Grampians, *D.E. Albrecht* 3167 (MEL); Silverband Road, The Grampians, 23 Mar. 1961, *M.E. Phillips* (CANB); Cultivation Creek, Victoria Range, *H. Streimann* 2960 (PERTH); Barneys Creek, Mt William Range, 30 Sep. 1959, *J.H. Willis* (MEL).

Distribution. Found principally in the Victoria Range and the Mt William Range in The Grampians, Victoria.

Habitat. Often growing on sandstone slopes in stringy bark (*Eucalyptus viminalis*) woodland.

Conservation status. This variety occurs principally in a national park where its security is ensured.

Etymology. The varietal epithet is derived from the Latin *angustus*, narrow, and *folium*, leaf, referring to the narrow leaves.

Notes. This variety may be recognized by its narrow leaves which are recurved on their margins and densely flocculose beneath, its 8-lobed calyces, and its large red corollas. Although treated here as a variety of *C. reflexa*, it has the appearance of being a hybrid between *C. decumbens* and a red-flowered variety of *C. reflexa*; however, *C. decumbens* is not known to occur in Victoria.

This variety intergrades with *C. reflexa* var. *speciosa*. Hybridization also occurs in The Grampians wherever *C. reflexa* var. *angustifolia* and *C. aemula* grow next to each other.

f. *Correa reflexa* var. *insularis* Paul G. Wilson, var. nov.

Folia late ovata vel circularia, plerumque 1.5-2 cm longa, plana, obtusa, ad basim rotundata, supra minute scabridula, infra tomentosa pilis manifestis. Bracteis foliaribus nec manifestis. Calyx tenuis, cupulatus, 3-4 mm longus, truncatus et breviter 4-dentatus, hinnuleo-tomentosus. Corolla anguste cylindracea, c. 2 cm longa, luteoviridis ad apicem ferruginea, versus basim sparse stellata. Anthera manifeste exserta.

Typus: Section 36, Hundred of Haines, Kangaroo Island, South Australia, 23 May 1989, P.J. Lang 8544 (*holo:* AD).

Erect shrub to 2 m high. Leaves broadly ovate to circular, mostly 1.5-2 cm long, flat, rounded at base, obtuse, upper surface minutely stellate-scabridulous, lower surface tomentose with obvious stellate hairs; petiole c. 4 mm long. Flowers terminal to branches, not surrounded by obvious leafy bracts. Calyx thin, cup-shaped, 3-4 mm long, truncate and shortly 4-dentate, fawn-tomentose. Corolla narrowly cylindrical, c. 2 cm long, yellowish green with rusty tip, moderately densely stellate-hairy towards apex but sparsely so towards base. Anthers well-exserted, narrowly oblong and narrowed towards an obtuse apex.

Selected specimens examined. SOUTH AUSTRALIA, Kangaroo Island: Nepean Esplanade, M. Hart 1 (CANB); Dudley Conservation Park, G. Jackson 2004 (AD); Birchmore Road, I. Jackson 3105 (CANB); 1 km N of Flour Cask Bay, 20 June 1986, D.N. Kraehenbuehl (CANB); Ayliffe Hill, B.M. Overton 09 (MEL).

Distribution. Endemic to the eastern half of Kangaroo Island, South Australia.

Habitat. Found in mallee scrub on a variety of soils including ironstone and sand.

Etymology. The Latin epithet *insularis* refers to the fact that the variety is found only on an island.

Notes. This variety hybridizes with *C. decumbens* and with *C. backhouseana* var. *orbicularis*. It is similar to *C. reflexa* var. *nummulariifolia* from the Bass Strait islands with which it was confused by Wilson (1961). In the latter variety the anthers are enclosed or just exserted and the calyx is hemispherical and densely rusty-tomentose.

g. *Correa reflexa* var. *nummulariifolia* (Hook. f.) Paul G. Wilson, Trans. Roy. Soc. South Australia 85: 30 (1961). - *C. speciosa* var. *nummulariifolia* Hook. f., Fl. Tasm. 1: 62 (1855). *Type*: Flinders Island, Bass Strait, Tasmania, 26 March 1844, J. Milligan per C. Gunn 1945b (*lecto*: K; *isolecto*: CANB, MEL), lectotype here chosen.

Distribution. Found in the islands of the Furneaux Group, Bass Strait, Tasmania.

Habitat. Found on mountains and on the coasts.

Typification. J.D. Hooker cited two collections under the name *C. speciosa* var. *nummulariifolia*; the first citation followed the Latin diagnosis and was simply "Gunn, 1945", while the second citation, which he included in the paragraph on "Habitat", was "Flinders' Island, Backhouse". The Backhouse collection could not be located in herb. K. The sheet in herb. K that bears the Gunn collection contains five plant pieces and three labels; the information on these labels is as follows:

1. (in Gunn's handwriting) "1945. *Correa virens* vars/ 1945a, & 1945b, I believe to be mere varieties of the same species although from different localities and numbered separately by Dr. Milligan, who sent them to me from Flinders Island."
2. "1945a/ Flinder's Island & Gun Carriage Isld./ 30/8 & 28/10/44".
3. "1945b/ Flinders' Island/ Sea coast. 26/3/44".

J.D. Hooker wrote the name "*var. nummulariaefolia*" against the number 1945b on labels 1 and 3. It therefore appears that he intended the accompanying specimen to be of this variety. The specimen that agrees best with the protologue is also the one nearest to label 3 on which Hooker has written the name "*nummulariaefolia*"; it is on the right-hand side of the sheet and is here designated the lectotype.

The numbers given to the specimens are those of Charles Gunn, not those of the collector, Joseph Milligan. A possible isoelectotype in herb. CANB bears an ex herb. BM label on which has been typed "Flinders Island. 26.iii.1844/ Joseph Milligan, 695"; another possible isoelectotype in herb. MEL has a label with the note "695, Flinders Island"; both the MEL and CANB specimens match the lectotype of var. *nummulariifolia*. The Kew sheet has been annotated by G. Bentham *C. speciosa* var. A with the species name underlined in red ink which indicates that Bentham had examined the sheet when preparing the "Flora Australiensis" (see Bentham 1863: 8*) and that he considered the specimens to belong to the variety *C. speciosa* a. *normalis*.

Notes. Anderson (1986) stated that material of *C. reflexa* var. *nummulariifolia* from the Bass Strait islands is most closely related to *C. backhouseana*. However, in making this assertion he was probably referring to the Bass Strait variant of *C. backhouseana* var. *backhouseana* with which taxon it has been confused.

This taxon, although here treated as a variety, may be a member of a hybrid complex involving *C. backhouseana*, *C. alba* and *C. reflexa* var. *reflexa*, and therefore few collections precisely match the type. A similar plant is found on the east coast of Tasmania where a hybrid origin is apparent.

Acknowledgements

I am grateful to the Director of the herbarium Universitatis Florentinae (FI) for sending photographs of the type specimens of *Mazeutoxeron rufum* and to the directors of the Australian herbaria and Kew for the loan of specimens. The illustration of *Correa eburnea* was kindly prepared by Annemarie Wilson. This work was partly funded by a grant from the Australian Biological Resources Study.

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<https://doi.org/10.58828/nuy00286>.

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