

Taxonomic review of the *Grevillea drummondii* Meissn. species group (Proteaceae)

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Abstract

Keighery, G.J. Taxonomic review of the *Grevillea drummondii* Meissn. species group (Proteaceae). Nuytsia 8(2): 225-230 (1992). The *Grevillea drummondii* Meissn. group previously considered as two species, *G. fistulosa* and *G. drummondii* (with three subspecies) is shown to consist of five closely related allopatric species. One new species *Grevillea fuscolutea* Keighery is described, and a new combination *Grevillea centr stigma* (McGillivray) Keighery is made.

Introduction

The purpose of this paper is to investigate the taxonomic status of the disjunct population of *Grevillea* on Mt Lindesay, previously placed in *Grevillea fistulosa* by McGillivray (1986). To enable correct placement of this species, it proved necessary also to investigate all collections placed in *Grevillea drummondii* by McGillivray (1986). A new key to the group is provided.

Key to the *Grevillea drummondii* group

- 1a. Perianth with a ring of reflexed hairs in the throat 2
- 1b. Perianth glabrous inside, flowers red 5. *G. fistulosa*
- 2a. Outer surface of perianth glabrous, flowers red-purple and greenish-cream 1. *G. drummondii*
- 2b. Outer surface of perianth covered by hairs, flowers orange-yellow
- 3a. Leaves linear, 40-80 mm long, undersurface densely tomentose 4. *G. fuscolutea*
- 3b. Leaves ovate-obovate, 19-45 mm long, undersurface glabrous or sparsely hairy with long white hairs 4
- 4a. Inflorescence of 13-18 flowers, leaves glabrous underneath 2. *G. pimeleoides*
- 4b. Inflorescence of 5-7 flowers, leaves sparsely hairy underneath 3. *G. centr stigma*

1. *Grevillea drummondii* Meissn. in Lehm., Pl. Preiss, 1:536(1845). *Lectotype*: Ad Flumen Cygnorum, Preiss 2623 (iso: MEL).

Low spreading, densely branched *shrub* to 30 x 30 cm, single stemmed at base, branchlets densely pubescent with a mixture of white and ferruginous hairs, becoming glabrous at length, main stem 5-7 mm wide. *Leaves* narrow obovate, with a short black mucrone, 3-6 mm wide, 14-33 mm long, narrowed at base but not forming a distinct petiole, margins very slightly incurved, midrib prominent above and below, sparsely hairy above, with long white hairs below, becoming glabrous with age. *Flowers* in a sub-terminal condensed raceme of 6-8 flowers, rachis pubescent 3-4 mm long. *Bracts* linear, acute, 2-3 mm long, both surfaces white tomentose, caducous. *Pedicels* 1-2 mm, reddish, glabrous. *Bracteoles* ovate, c. 0.75 mm long, apex acute, pubescent. *Perianth* 4-5 mm long, pink, limb white, recurved section green, swollen below middle, limb globular recurved, glabrous, inside glabrous except for a ring of hairs in the throat. *Gynoeceium* 4-5.5 mm long. *Style* pink, flattened, sparsely hirsute. *Ovary* densely pubescent with white hairs, 1-1.5 mm long. *Stipe* c. 1.5 mm long, sparsely pubescent, torus oblique. *Nectary* ± 1 mm long, yellow. *Pollen presenter* becomes pink-purple as stigma matures, orbicular, lateral and vertical glabrous, stigmatic area a small area below centre on ventral side. *Fruit* fusiform, 9-10 mm long, closely tomentose. *Seed* elliptic, margins tightly inrolled, c. 6 mm long.

Specimens examined. WESTERN AUSTRALIA: Bolgart, Aug. 1963, B. Jarrey (PERTH); 2.2 miles [3.5 km] E of Calingiri, S. Patrick 288 (PERTH); 71 mile peg Geraldton Highway, R.D. Royce 3840 (PERTH); 74.5 miles on Geraldton Highway, A.S. George 14166 (CANB, K, MEL, NSW, PERTH); 73.8 miles on Geraldton Highway, R. Garraty 157 (PERTH, NSW); 75 mile peg Geraldton Highway; H. Demarz 6137 (KPBG, PERTH); 82 mile peg, Geraldton Highway, C.A. Gardner 16237 (PERTH); Bindoon to Moore River, Sept. 1966, C.A. Gardner s.n. (PERTH); Cataby, D.K. Coughran 0111 (PERTH); Yandan Hill, G.J. Keighery 10711 (PERTH).

Distribution. Found in a small area between Calingiri (31° 09' S, 116° 14' E) and Cataby (30° 45' S, 115° 31' E), in southern Western Australia. *Grevillea drummondii* grows under *Eucalyptus wandoo* woodland, *E. lane-poolei* woodland, or rarely in low heath on massive laterite or lateritic loam soils.

Flowering period. July to September.

Conservation status. *Grevillea drummondii* is an uncommon species known from scattered localities between Bolgart and Calingiri with an isolated occurrence at Yandan Hill. *G. drummondii* (*sens. lat.*) has previously been gazetted as rare flora, and its restriction to the type form in this paper, may require its status to be re-assessed to rare.

Notes. *Grevillea drummondii* differs from all other members of the group in having glabrous flowers that are multicoloured (red and green and white sections).

2. *Grevillea pimeleoides* W.V. Fitzg. J. Proc. Mueller. Bot. Soc. Western Australia 1: 37(1902). *Lectotype*: Rocky spots on hillside between Smiths Mill and Helena River, July 1901, W.V. Fitzgerald s.n. (PERTH). *Grevillea drummondii* subsp. *pimeleoides* (W.V. Fitzg.) McGillivray. New Names in *Grevillea* (Proteaceae); 5(1986).

Erect, open or dense *shrub* to 2 m tall and 1 m wide, single stemmed at base, with an indumentum of hairs, new growth pubescent, pale ferruginous. *Branchlets* angular to terete, densely tomentose at first, at length almost glabrous. *Leaves* ovate-obovate, obtuse with a short black mucrone, 0.5-1 mm long,

11-15 mm wide, 30-43 mm long, narrowed to a petiole of 3-5 mm, margins scarcely recurved, midrib prominent above and below, upper surface pubescent when young, becoming green and almost glabrous with maturity, edges with long white hairs, 1-3 mm long, lower surface pale green, glabrous. *Flowers* in a sub-terminal condensed raceme of 13-18 flowers, rachis pubescent, 4-5 mm long. *Bracts* linear, acute, 3-4 mm long, both surfaces white tomentose, caducous while inflorescence in bud. *Pedicels* 4-5 mm, pale yellow green, hirsute. *Bracteoles* ovate, c. 1 mm long, apex acute, pubescent. *Perianth* orange-yellow, 7-9 mm long, sparsely pubescent with white hairs, slightly swollen below middle, limb globular, recurved, covered with dense white hairs, inside glabrous except for a ring of hairs in the throat. *Gynoecium* 7-8 mm long. *Style* yellow, flattened, sparsely pubescent. *Ovary* densely pubescent with white hairs, 1.5-2 mm long. *Stipe* c. 2 mm long, sparsely pubescent, torus oblique. *Nectary* c. 1 mm long, yellow. *Pollen presenter* becomes red as stigma matures, orbicular, lateral and vertical, sparsely hirsute all over dorsal surface, stigmatic area a small cone below centre on ventral side. *Fruit* fusiform, 17-22 mm long, closely tomentose. *Seed* elliptic, margins tightly inrolled, 9 mm long, base acute.

Specimens examined. WESTERN AUSTRALIA: 42 mile [67 km] peg Albany Highway, *K.R. Newbey* 1427 (PERTH); Sullivans Rock, *E. Wittwer* 2130 (PERTH); 34 km SE Armadale, *D.J. McCutcheon* 3464 (PERTH); 40 miles [64 km] south of Perth, 30 Sept. 1968, *M.E. Phillips* (PERTH); Helena Valley, *J. Seabrook* 347 (PERTH); 3 km from Mundaring Weir, Aug. 1933, *E.T. Bailey* s.n. (PERTH); Smiths Mill, Aug. 1901, *Diels & Pritzel* s.n. (PERTH); Reserve 23981, Glen Forest, *A.S. George* 14613 (PERTH); 2 miles [3 km] from Mundaring Weir, *A.S. George* 116565 (PERTH, CANB, K, NSW, NY); near Araluen, 25 Nov. 1965, *F. Lullfitz* s.n. (PERTH); Gleneagle, *A.H. Larner* 3 (PERTH); Glen Forest, *E. Pritzel* 517 (PERTH); Mundaring, *J. Havel* 587 (PERTH); Mundaring Weir, Aug. 1920, *C.A. Gardner* s.n. (PERTH); Helena River, Glen Forest, no date, *C.A. Gardner* s.n. (PERTH); 2 miles [3 km] south of Helena River towards Southern Mill, July 1901, *W.V. Fitzgerald* (PERTH).

Distribution. Confined to valleys of the Helena River, and around granites of the Monadnocks in the northern jarrah (*Eucalyptus marginata*) forest between Mundaring (31° 54' S, 116° 10' E) and Mt Cooke (32° 25' S, 116° 18' E). Usually under eucalypt forest on lateritic loam over granite.

Flowering period. July to November.

Conservation status. Despite having a very limited range, all populations are enclosed by State Forest and the Monadnocks reserve, and it seems secure.

Notes. *Grevillea pimeleoides* is usually a tall open shrub, single stemmed at base. It differs from its closest relative *G. centristigma* in habit, the number of flowers in the inflorescence (13-18 versus 5-7), leaf length (30-43 mm versus 19-26), perianth size (7-9 mm versus 4-6 mm), leaf pubescence and the stigmatic position.

3. *Grevillea centristigma* (McGillivray) Keighery comb. et stat. nov. *basionym:* *Grevillea drummondii* subsp. *centristigma* McGillivray. New Names in *Grevillea* (Proteaceae) 5 (1986). *Type:* 24 km SE of Pemberton on road to Northcliffe, *P.G. Wilson* 6289 (holo: PERTH; iso: BH, NSW, MEL).

Erect or spreading few or much branched *shrub* to 40 x 40 cm. Plants multi-stemmed or single stemmed at base, with an indumentum of hairs, new growth pubescent, ferruginous. *Branchlets* angular to terete, densely tomentose at first, at length almost glabrous. *Leaves* ovate-obovate, with a short black pungent mucrone, 0.5-1 mm long, (3)5-6 mm wide, 19-22(26) mm long, narrowed to a petiole of 2-3 mm, margins recurved, midrib prominent above and below, upper surface sparsely hairy when young, becoming almost glabrous when mature, lower surface pale green with long white hairs. *Flowers* in condensed axillary and sub-terminal racemes of 5-7 flowers, rachis pubescent, 2-3 mm long. *Bracts*

linear, acute, 2-3 mm long, both surfaces white, tomentose, caducous while inflorescence in bud. *Pedicels* 2-3 mm long, pale green, hirsute. *Bracteoles* ovate, c. 0.5 mm long, apex acute, pubescent. *Perianth* orange-yellow, 4-6 mm long, sparsely pubescent with white hairs, swollen below middle, limb globular recurved, sparsely covered with long white hairs, inside glabrous except for a ring of hairs in the throat. *Gynoecium* 5-6 mm long. *Style* yellow, flattened, sparsely hirsute. *Ovary* densely pubescent with white hairs, c. 1 mm long. *Stipe* 1.5-2 mm long, sparsely pubescent, torus oblique. *Nectary* c. 0.5 mm long, yellow. *Pollen presenter* becoming reddish as stigma matures, orbicular, lateral and vertical, sparsely hirsute all over dorsal side, stigmatic cone central on ventral side. *Fruit* fusiform, 8-10 mm long, densely tomentose. *Seed* 6-7 mm long, margins inrolled, apex acute.

Specimens examined. WESTERN AUSTRALIA: Last Bottle Rock, *N.G. Marchant* 79/58 (PERTH); Collie, *L.W.J. Dodd* 8/63 (PERTH); Shannon Rock, *B.G. Briggs* 6553 (PERTH, NSW); Collie, June 1916, *F.W. Wakefield* s.n. (PERTH); Whicher, *G.W.J. McCutcheon* 820 (PERTH); Barrabup Pool, West of Nannup, *G.J. Keighery* 8085 (PERTH); NW of Walpole to Pemberton road, 15 Nov. 1977, *H. Dempster* s.n. (PERTH); Shannon Rock, 29 April 1980, *A. Annels* s.n. (PERTH); Shannon Rock, *R.D. Royce* 4296 (PERTH); Worsley, 17 km NW of Collie, *K.J. Atkins* 180 (PERTH); East of Noggerup on Grimwade road, *G.J. Keighery* 4077 (PERTH).

Distribution. Confined to the southern jarrah forest and granite rocks of the karri forest of southern Western Australia between the Whicher Range (33° 40' S, 115° 25' E), north to Collie (33° 59' S, 116° 09' E) and south to Walpole (34° 59' S, 116° 44' E). Grows in Eucalypt forest (usually *E. marginata*/*E. calophylla*) on lateritic loam soils often edging granite rocks.

Flowering period. April to November; probably sporadically all year with a spring peak.

Conservation status. This is the most widespread of all species of the *G. drummondii* complex, and its range is entirely contained by State Forest, the Shannon National Park and the proposed Whicher Range Nature Reserve.

Notes. Closely related to *G. pimeleoides*, but differing in those characters outlined under that species, it can be argued that this taxon could be left as a subspecies of *G. pimeleoides*, or as part of a complex of subspecies including *G. fistulosa*. The discovery that *G. fuscolutea* is (on floral characters) part of the *G. drummondii* group rather than *G. fistulosa* means that either the circumscription of *G. drummondii* is widened to include *G. fistulosa* as another subspecies or the group is split into a series of 5 closely related species. This course is followed here, as no integration in any character sets has been observed between the taxa suggesting they are best recognised as separate entities.

Grevillea centristigma has a "less prominent wing" around the pollen presenter giving the stigma a central position.

4. *Grevillea fuscolutea* Keighery sp. nov.

Differt a *G. fistulosa* flores lutea, perianthium cum annulus fauce pili internus.

Typus: Western Australia [Menzies Botanical District, precise locality withheld], 10 April 1989, *G.J. Keighery* 11271 (holo: PERTH; iso: CANB, MEL, K)

Open erect *shrub* to 1.2 m tall and 1.5 m wide, with an indumentum of hairs, new growth densely ferruginous (young leaves yellow-green). *Branchlets* angular to terete, densely tomentose at first, at length almost glabrous. *Leaves* oblanceolate-linear, with a short black mucrone 0.5-1.5 mm long, 7-12 mm wide, 41-78 mm long, narrowed to a petiole of 3-5 mm, margins recurved, midrib prominent above and below, with a prominent marginal vein, upper surface hirsute when young, becoming dark green and almost glabrous, lower surface white, densely tomentose with matted hairs. *Flowers* in axillary sub-umbellate racemes, usually 5 flowers on very short peduncles, rachis densely pubescent. *Bracts* linear, acute, 3-4 mm long, abaxial surface white tomentose, adaxial brown, glabrous, caducous when inflorescence in bud. *Pedicels* 4-6 mm long, orange-ferruginous, hirsute. *Perianth* yellow with deep orange hairs, 6-8 mm long, swollen below middle, limb globular recurved, and covered with dense white hairs, inside glabrous except for a ring of hairs in the throat. *Gynoecium* 7-9 mm long. *Style* yellow with orange-red hairs, 6-7 mm long. *Ovary* densely hirsute with white hairs, c. 1 mm long. *Stipe* c. 0.5 mm long, sparsely pubescent, torus oblique. *Nectary* c. 1 mm long, yellow. *Pollen presenter* becomes orange as stigma matures, orbicular, lateral and vertical, sparsely pubescent on dorsal side, stigmatic area a small cone below centre on ventral side. *Fruit* not seen.

Other specimens examined. WESTERN AUSTRALIA: all from type locality; *Survey Team*, D.W. 80 (PERTH), *Forests Dept*, 30 April 1980 (PERTH), *A.P. Brown* 269 (PERTH).

Distribution. Restricted to a large granite monadnock, NE of Denmark. Grows in shallow brown-black loam over granite on the upper slopes where it is emergent from low heath.

Flowering period. April to October; perhaps all year with a spring peak.

Conservation status. The species is locally abundant but is known only from the type locality and could be considered vulnerable (catagory 2V: Briggs & Leigh 1988).

Etymology. The name alludes to the reddish-brown new growth and the yellow flowers. (Greek: *fusco* - dark brown, *lutea* - yellow).

Notes. *Grevillea fuscolutea* is related to *G. fistulosa*, and was included in this species by McGillivray (1986). It shares the long narrow leaves, white tomentose below with recurved or revolute margins and the new growth densely ferruginous. However, it has a ring of hairs in the throat, a major character used by George (1974) to differentiate *G. fistulosa* from *G. drummondii*. Also the species has yellow not red flowers which are more swollen in the middle, other characters which link *G. fuscolutea* to the *G. drummondii* complex.

This is a very attractive plant, with its greyish-green foliage and ferruginous new growth. It should prove as attractive a horticultural subject as the widely grown *G. pimeleoides*.

5. *Grevillea fistulosa* A.S. George, *Nuytsia* 1: 371(1974). *Type*: Middle Mt Barren, Fitzgerald River, W.A., 23 Sept. 1925, *C.A. Gardner* 1861 & *W.E. Blackall* (holo: PERTH; iso: CANB, K, MEL).

Erect *shrub* to 2 m tall, with an indumentum of hairs, new growth densely ferruginous. *Branchlets* angular-striate, densely tomentose at first, at length almost glabrous. *Leaves* oblanceolate-linear, with a short black mucrone 0.5-1.0 mm long, 6-15 mm wide, 40-70 mm long, narrowed to a petiole of c. 5 mm long, margins incurved, often inrolled (at least when dry) giving the leaves a tubular aspect; midrib prominent above and below, with a prominent marginal vein, upper surface hirsute when young,

becoming dark green and almost glabrous, lower surface white, densely tomentose with matted hairs. *Flowers* in a sub-terminal condensed raceme of 4-7 flowers, rachis pubescent, 2-3 mm long. *Pedicels* 1-3 mm long, hirsute. *Bracts* linear, acute, 3-4 mm long, abaxial surface white tomentose, adaxial glabrous, caducous while inflorescence in bud. *Pedicels* 4-8 mm long, reddish, hirsute. *Perianth* red, 6-8 mm long, slightly swollen below middle, sparsely hirsute, limb globular, recurved, more densely hirsute, inside glabrous. *Gynoecium* 6-9 mm long. *Style* red, 6-7 mm long, sparsely hirsute. *Ovary* densely hirsute, c. 1 mm long. *Stipe* c. 0.5 mm long, sparsely pubescent, torus oblique. *Nectary* c. 1 mm long, yellow. *Pollen presenter* orbicular, lateral, sparsely pubescent dorsal side, stigmatic area a small cone below centre on ventral side. *Fruit* fusiform, densely tomentose, 15-21 mm long. *Seed* elliptic, margins tightly inrolled, 7-9 mm long, base acute.

Specimens examined. WESTERN AUSTRALIA: 3 km N of Thumb Peak, K.R. Newbey 2720 (PERTH); Whoogarup Range, C.A. Gardner 2967 (PERTH); Thumb Peak Range, A.S. George 7119 (PERTH); Middle Mt Barren, A.S. George 19903 (PERTH); Mt Woolbernup, M.I.H. Brooker 2727 (PERTH); West face of Thumb Peak, R.D. Royce 9257 (PERTH); NE side of Whoogarup Range, A.S. George 1912 (PERTH); N of Hamersley River, 14 miles (22 km) from Phillips River Crossing, E. Wittwer (KPBG, PERTH).

Distribution. Endemic to Fitzgerald River National Park, apparently to the middle peaks (Whoogarup Range, Thumb Peak, Woolbernup and Mid Mt Barren) as it has not been recorded for West or East Mt Barren. *Grevillea fistulosa* grows in mallee heath or tall heath/shrubland on shallow sandy clay soils over metamorphosed sandstone.

Flowering period. July to December.

Conservation status. All known localities (6) are within Fitzgerald River National Park.

Notes. *Grevillea fistulosa* is the only purely red-flowered species of the group, occurring on metamorphic sandstones relatively isolated from the nearest allied species (*G. fuscolutea*). This species also has considerable horticultural potential.

Acknowledgements

Sue Patrick first drew the author's attention to the problems of *G. drummondii* when it was gazetted rare flora. Type material at MEL was consulted with the aid of the curator and an Australian Biological Resources Study Grant. Jan Rayner, as usual, transformed the manuscript into a paper.

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CORRECTION

Correction to 'Taxonomic review of the *Grevillea drummondii* Meissn. species group (Proteaceae)' by G.J. Keighery, Nuytsia 8(2): 225-230 (1992)

In the above paper a new species *Grevillea fuscolutea* Keighery, sp. nov. was described. In the heading on page 228 the spelling '*fuscolotea*' was printed, but this was a typographical error and should have read '*fuscolutea*'. The latter spelling was used elsewhere in the paper. Article 73.1 of the 'International Code of Botanical Nomenclature' allows for correction of typographic errors. The spelling *Grevillea fuscolutea* is correct and the spelling '*fuscolotea*' rejected. - Editor.

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