

Seven new species of *Grevillea* (Proteaceae) from Western Australia

By A. S. George

Abstract

The following new species of *Grevillea* are described: *G. costata*, *G. fistulosa*, *G. infundibularis*, *G. involucrata*, *G. olivacea*, *G. ripicola*, and *G. scapigera*. All are endemic in South-Western Australia.

Introduction

The seven new species of *Grevillea* described here are endemic in South-Western Australia and are of restricted occurrence within this region.

The term "pollen presenter", referring to the style end of many Proteaceae, has been defined by Guthrie and Salter (1950) and later by Rourke (1969). Bentham (1871) realised that in Australian Proteaceae the pollen is shed onto the style end just before anthesis and is exposed upon it when the style is released from the perianth. He suggested that, as with the Asteraceae (Compositae), the stigmatic area becomes receptive later. Guthrie and Salter observed that the true stigmatic area is a small groove, usually at the apex of the pollen presenter. Rourke described and illustrated the whole structure in more detail.

The pollen presenter presents the pollen to the pollinator, and only later does the stigmatic groove become receptive to pollen from another source. The form of the pollen presenter is usually of some diagnostic value due to its variation of form between species and between genera. In *Grevillea* it has often been previously referred to as the stigmatic disc.

The specimens cited are at PERTH unless otherwise stated.

Grevillea costata C. A. Gardn. ex A. S. George sp. nov. Sect. *Lissostylis*

Grevilleae inconspicuae Diels affinis, a qua habitu patenti; foliis crassioribus pungentibus supra enerviis, pedicellis longioribus; et fructu costato, differt.

Type: Rocks in the Murchison River, W.A., 30 Aug. 1931, C. A. Gardner 2597. Holo: PERTH, iso: K, NSW.

Allied to *Grevillea inconspicua* Diels, from which it differs in the spreading habit; the thicker, pungent leaves, nerveless above; the longer pedicels; and the ribbed fruit.

A shrub to 1 m with spreading branches, silky-pubescent with appressed, medi-fixed hairs. *Branchlets* angular-striate when young, reddish. *Leaves* linear, pungent, very shortly petiolate, 1.5–4 cm long, margins closely revolute, the upper surface appressed-pubescent but at length glabrous. *Flowers* in small, terminal or axillary racemes, the peduncle 2–10 mm long, pubescent. *Bracts* filiform, ferruginous-pubescent, very early caducous. *Pedicels* slender, 6–10 mm long, sparsely appressed-pubescent. *Perianth* white, narrow, 3–4 mm long without the limb, appressed-pubescent outside, inside densely hirsute around the ovary, less so above; *limb* reflexed, pubescent outside, glabrous inside. *Torus* straight, gland small. *Style* 8–9 mm long; *stipe* 1–2 mm long; *pollen presenter* ± orbicular, thick but with a rather thin undulate margin, the stigmatic groove on a prominent central cone; a few glands on the style just below the pollen presenter. *Fruit* swollen, 12–15 mm long, prominently 7–10-ribbed, the ribs sometimes irregular. *Seeds* oblong, 9–10 mm long, thick, with incurved margins.

Distribution: Western Australia near lower central west coast; along or near the lower Murchison River, growing in rocky soil.

Other collections: 100 miles N of Rabbit Proof Fence, North-West Coastal Highway, 1 Aug. 1970, *E. H. West* s.n.; Ross Graham Lookout, Kalbarri National Park, 18 Dec. 1968, *H. Demarz* 922; 366 miles N of Perth, near the Murchison River, on North-West Coastal Highway, 10 Sept. 1965, *F. Humphreys* s.n.; Galena, at Murchison River bridge, 16 Sept. 1968, *M. E. Phillips* (duplicate of CBG 027704); Murchison River gorge, 13 May 1961, *A. S. George* 2377.

The specific epithet refers to the ribbed fruit.

Grevillea fistulosa A. S. George sp. nov. Section Plagiopoda

Grevilleae drummondii Meisn. affinis, a qua indumento; foliis longioribus infra albotomentosis marginibus recurvis ad laxe revolutis; perianthii segmentis rufis 3-nervatis intus glabris; toro minus obliquo; stylo tereti hirsutiore; et stigmatibus orbiculari, differt.

Type: Middle Mt. Barren, Fitzgerald River National Park, W.A.; a shrub 3–6 ft, flowers red, 23 Sept. 1925, *C. A. Gardner* 1861 and *W. E. Blackall*. Holo: PERTH, iso: CANB, K, MEL, NSW.

Allied to *Grevillea drummondii* Meisn. from which it differs in the indumentum; the longer leaves, white-tomentose below, with recurved or loosely revolute margins; the perianth segments red, 3-nerved, glabrous inside; the torus less oblique; the style terete, more hirsute; and the orbicular stigma.

An erect shrub of 1–2 m with an indumentum of hairs which are forked at the base, the new growth densely ferruginous. *Branchlets* angular-striate, becoming terete, densely tomentose at first, at length almost glabrous. *Leaves* oblanceolate, obtuse but with a broad, hard mucro, mostly 4–7 cm long, narrowed into a petiole of less than 5 mm; sometimes flat with recurved margins but usually the margins inrolled giving the leaf a hollow, tubular aspect; midrib prominent above and below, with a lateral nerve just inside each margin; upper surface hirsute at first but later glabrous and finely scabrous; lower surface remaining densely tomentose with matted hairs. *Flowers* in axillary, sub-umbellate racemes on very short peduncles, the rachis densely hirsute. *Bracts* linear, acute, 3–4 mm long, abaxial surface tomentose, adaxial surface glabrous within, soon caducous. *Pedicels* 5–8 mm long, hirsute. *Perianth* 6–7 mm long, red, slightly swollen below middle, loosely hirsute, the limb globular, recurved, more densely hirsute, the segments 3-nerved, glabrous within. *Style* 6–7 mm long, thick, \pm terete, hirsute, the torus oblique; stipe \pm 1 mm long. *Pollen presenter* orbicular, lateral and vertical, shortly hirsute in the centre of the dorsal side, the stigmatic area a small cone just below the centre on the ventral side. *Fruit* fusiform, closely tomentose, 15–20 mm long. *Seed* elliptic but the margins tightly inrolled, very narrowly winged, 8 mm long, base acute.

Distribution: endemic in the Fitzgerald River National Park on the south coast of Western Australia. Usually occurs in dense scrub in rocky gullies on the hills.

Other Collections: Middle Mt. Barren, 16 July 1970, *A. S. George* 10093; west face of Thumb Peak, 23 Oct. 1970, *R. D. Royce* 9257; 3 km north of Thumb Peak, 27 Oct. 1967, *K. Newbey* 2720; Thumb Peak, 31 Oct. 1965, *A. S. George* 7119; Whoogarup Range, 28 Nov. 1931, *C. A. Gardner* 2967; NE side of Whoogarup Range, 2 Dec. 1960, *A. S. George* 1912; N of Hamersley River, 14 miles from Phillips River crossing, 28 Aug. 1965, *E. Wittwer* 433.

The specific epithet refers to the tube-like appearance of the leaves caused by the recurved margins.

Grevillea infundibularis A. S. George sp. nov. Sect. Leiogyne

Grevilleae platypodae F. Muell. affinis, a qua habitu minori; foliis flabelliformibus, dentatus, fere sessilibus, glabris; et inflorescentiis parvis, simplicibus terminalibus, differt.

Type: West side of Middle Mt. Barren, Fitzgerald River National Park, W.A., among quartzite boulders, 16 July 1970, *A. S. George* s.n. Holo: PERTH, iso: AD, CANB, K, MEL, NSW, PERTH.

Allied to *Grevillea platypoda* F. Muell., from which it differs in the smaller habit; the leaves flabelliform, dentate, almost sessile, glabrous; and the small, simple, terminal inflorescences.

A sprawling shrub, occasionally up to 1 m tall, appressed-pubescent when young, becoming glabrous apart from the flowers, or the branches sometimes spreading-hirsute. *Leaves* hemispherical-flabelliform, almost sessile, when fresh concave and stem-clasping so as to appear funnel-like, mostly 10–25 mm long x 20–35 mm wide, dentate with mucronate teeth, a prominent nerve to each tooth, the nerve-like margins slightly recurved. *Flowers* red, in small terminal racemes, rarely axillary. *Rachis and pedicels* appressed-pubescent with medifixed hairs; pedicels 5–8 mm long. *Perianth* 7–9 mm long without limb, broad at base, sparsely pubescent outside, inside densely hirsute below, less so above; limb prominent, recurved, pubescent outside, glabrous inside. *Torus* straight, gland \pm horizontal, lobed, rather thin. *Style* 17–18 mm long, slender, glabrous; stipe 1 mm long; ovary bilobed; *pollen presenter* lateral and vertical, orbicular, the stigmatic groove small, central. *Fruit* broadly fusiform but abruptly narrowed at each end, 13–14 mm long, thick-walled, somewhat rugose, with a ridge on each side. *Seeds* not seen.

Distribution: known so far from only two peaks in the Fitzgerald River National Park on the south coast of Western Australia. Growing with scrub among quartzite boulders.

Other Collections: Thumb Peak, 27 Oct. 1967, K. Newbey 2727; W slope of Thumb Peak, near base, 23 Oct. 1970, R. D. Royce 9274.

The specific epithet refers to the funnel-like aspect of the leaves in the fresh state.

Grevillea involucrata A. S. George sp. nov. Sect. Plagiopoda

Grevilleae fulgentis C. A. Gardn. affinis, a qua foliis brevioribus pinnatisectis 5–13-lobatis; inflorescentia pauciflora; involucreo persistenti; bracteis fere vel sat glabris; pedicellis glabris; perianthio extus glabri, intus dimidio infero dense hirsuto; et stylo graciliori minus hirsuto, differt.

Type: Between Hyden and Lake Varley, W.A. (32°41'S, 118°56'E), 30 June 1970, A. S. George 9890. *Holo*: PERTH, *iso*: AD, CANB, K, MEL, NSW, PERTH. In spirit collection at PERTH, no. 1300/A.

Allied to *Grevillea fulgens* C. A. Gardn. from which it differs in the shorter pinnatisect leaves with 5–13 lobes; the few-flowered inflorescence; the persistent involucre; the bracts almost or quite glabrous; the glabrous pedicels; the perianth glabrous outside, densely hirsute inside in the lower half; and the more slender, less hirsute style.

A spreading shrub to 50 cm tall x 2 m broad. *Branches* pubescent with both appressed medifixed hairs and short erect glandular hairs. *Leaves* pinnatisect, 1–3 cm long, divided almost to the midrib into 5–13 linear pungent lobes 4–8 mm long, appressed-pubescent but becoming glabrous, the margins tightly revolute but the midrib prominent below. *Inflorescence* terminal or axillary, of 1–3 flowers, the short peduncles with several bracts forming a persistent involucre. *Bracts* cuneate-obovate, acute, 4–8 mm long (those subtending the flowers the larger), glabrous or with a few appressed hairs outside below the apex, deep pink. *Pedicels* slender but thickened under the torus, 6–10 mm long, glabrous. *Perianth* 10–12 mm long without the limb, broad at base, thick, glabrous outside hirsute inside in the lower half, the limb tightly revolute, glabrous. *Torus* oblique, gland widely concave. *Style* \pm 2 cm long, curved; stipe 1–2 cm long, glabrous anteriorly, hirsute posteriorly; ovary densely white-hirsute; style ferruginous-hirsute with basifixed hairs; *pollen presenter* lateral and vertical, orbicular, thick, the stigmatic groove central, scarcely raised. *Fruit* not seen.

Distribution: known from two localities in southern South-Western Australia, between Hyden and Lake Magenta, where it grows in shallow sand over laterite on open heath.

Other collection: \pm 6 miles NW of Lake Magenta, 7 July 1971, K. Newbey 3388.

The specific epithet refers to the involucre of bracts about the inflorescence.

Grevillea olivacea* A. S. George sp. nov. Sect. *Leigyne

Grevilleae obtusifoliae Meisn. affinis, a qua habitu elatiori erecti; foliis majoribus subtus albo-pubescentibus; rhachidi pedicellisue dense pubescentibus; et perianthio extus pubescenti intus glabri praeter pilos densos circiter ovarium, differt.

Type: on the mainland opposite Snag Island, S of Dongara, W.A.; shrub to 2.3 m with red flowers, on low limestone flat, 6 Sept. 1966, S. Chambers 88. Holo: PERTH.

Allied to *Grevillea obtusifolia* Meisn. from which it differs in the taller, erect habit; the larger leaves white-pubescent below; the rachis and pedicels densely pubescent; and the perianth pubescent outside and glabrous inside except for a ring of hairs about the ovary.

A shrub to 4 m, the branches appressed-pubescent becoming glabrous. Leaves narrow-elliptic to oblanceolate, rarely with 1 or 2 small lobes near apex, 3–5 cm long, obtuse, narrowed into a petiole up to 1 cm long, the margins recurved to loosely revolute, upper surface green, appressed-pubescent at first but soon glabrous, lower surface appressed-white-pubescent; midrib evident on both sides with faint penninervation. Flowers red in short terminal and axillary racemes, the rachis and pedicels densely pubescent. Pedicels 4–5 mm long. Perianth 7–8 mm long (excluding limb), pubescent outside, glabrous inside except for a ring of dense hairs around the ovary, the limb erect in young bud, recurved before anthesis, densely pubescent outside, glabrous inside. Torus straight, gland prominent. Style 25 mm long, slender, glabrous, the stipe 4–5 mm long; pollen presenter oblique, orbicular, with a prominent stigmatic cone. Fruit \pm cylindrical but pouched at base, stipe lateral, apex abruptly tapered into persistent style, 11–13 mm long, glabrous, somewhat rugose. Seeds elliptic but supervolute, 8 mm long, the margins narrowly winged.

Distribution: Western Australia, near west coast between Dongara and Jurien Bay: growing in calcareous soil among scrub.

Other collections: 15 miles N of Snag Island, 21 Sept. 1966, S. Chambers 119; Logue River, 26 Aug. 1948, C. A. Gardner 9104 (PERTH, CANB, K, NSW); Stockyard Gully, July 1963, C. A. Gardner s.n.; Stockyard Gully, June 1963, Gabrielson s.n. (PERTH, MEL); Eneabba Reserve, 10 miles NE of Leaman, 2 Aug. 1967, A. C. Kessell 631 (PERTH, AD); Jurien Bay area, Sept. 1957, no coll.

The specific epithet refers to the leaf colour which resembles that of olive leaves (*Olea europaea* L.).

Grevillea ripicola* A. S. George sp. nov. Sect. *Calothyrsus

Grevilleae dielsianae C. A. Gardn. affinis, a qua foliorum lobis lineari-lanceolatis planis; perianthii segmentis intus fauce pilis reflexis pubescentibus etiam marginibus breviter, differt.

Type: Collie River at Collie, W.A.; growing in gravelly loam along river banks; 15 Oct. 1965, A. S. George 6848. Holo: PERTH, iso: AD, CANB, K, MEL, NSW, PERTH.

Allied to *Grevillea dielsiana* C. A. Gardn., from which it differs in the lobes of the leaves linear-lanceolate, flat; and the perianth segments pubescent in the throat with reflexed hairs and shortly pubescent on the margins.

A densely branched shrub to 3 m tall, young growth pubescent, otherwise glabrous apart from the bracts and the inner surface of the perianth. Leaves divided divaricately into 3–5 linear-lanceolate lobes, the lower ones again divided into 2–5 lobes. all 3-nerved, pungent, flat with slightly recurved margins;

the whole leaf up to 6 cm long x 8 cm broad, the lobes 1-3 cm long. *Flowers* pink becoming red, with green limb and pollen presenter, in terminal racemes on short peduncles. *Bracts* ovate about 0.5 mm long, pubescent in the upper part and on the margins, very early caducous. *Pedicels* reflexed, 4-5 mm long. *Perianth* 8-10 mm long, slightly broader in lower half, the limb reflexed; glabrous outside, inside pubescent in the throat with reflexed hairs and on the margins with shorter, spreading hairs. *Torus* somewhat oblique; *gland* thick. *Style* 30-35 mm long, slender; *stipe* 3 mm long; *pollen presenter* lateral, very oblique, \pm orbicular, the stigmatic area a small central umbo. *Fruit* 16-18 mm long, smooth, style persistent. *Seeds* oblong, slightly crescentic, grooved on inner face.

Distribution: South-Western Australia: around Collie, 160 km S of Perth. Grows along river banks in jarrah-marri forest.

Other collections: Griffin Bridge, Collie, 27 Nov. 1965, A. R. Fairall 1820 (PERTH, NSW); 4 miles SE of Collie on road to Cardiff, 20 April 1966, A. S. George 7710; Collie, Oct. 1969, P. N. Shedley s.n.

The specific epithet refers to the habitat, i.e. growing on river banks.

Grevillea scapigera A. S. George sp. nov. Sect. *Lissostylis*

Grevilleae eryngioidi Benth. affinis a qua habitu effuso; foliis minoribus bipinnatifidis longe-petioleto lobis angustioribus; inflorescentia simplici pedunculo breviori glabra praeter perianthii pagina interiori hirsuta; bracteis parvis; stylo longiori longe-stipitato; et fructu seminibusque angustioribus, differt.

Type: Between Corrigin and Quairading, W.A., on sandplain, 14 Feb. 1960, C. V. Malcolm s.n. *Holo*: PERTH, *iso*: NSW.

Allied to *Grevillea eryngioides* Benth., from which it differs in the sprawling habit; the smaller, bipinnatifid leaves with narrower lobes, long-petioleto; the simple inflorescence on a shorter peduncle glabrous except for the hirsute inner surface of the perianth; the small bracts; the longer style, long-stipitate; and the narrower fruit and seeds.

A shrub, the stems prostrate or slightly ascending, appressed-pubescent. *Leaves* erect, 3-9 cm long on, slender petioles, bipinnatifid, at first pubescent but soon glabrous; lobes cuneate to lanceolate, flat, pungent. *Flowers* in dense racemes on leaf-opposed erect peduncles to 30 cm high, simple or rarely branched. *Rachis* glabrous. *Bracts* linear, 3.5-4.5 mm long, ciliate, caducous. *Pedicels* slender, 3-5 mm long, glabrous. *Perianth* pale yellow, narrow, 4-5 mm long, revolute under the limb, glabrous except for spreading hairs inside in the lower half. *Torus* straight. *Style* about 18 mm long, slender, minutely papillose; *stipe* 4-5 mm long; *pollen presenter* lateral, vertical, obovate with thin undulate margins, the stigmatic groove central, slightly raised. *Fruit* 1-1.5 cm long, tuberculate. *Seeds* navicular, smooth, outer surface convex, inner slightly so, with narrow membranous borders.

Distribution: Western Australia: central South-West, between Brookton and Hyden, growing on sandplains.

Other collections: Sandplain W of Jubuk, 6 Nov. 1954, N. H. Brittan s.n.; Bending-Corrigin area, 20 Oct. 1971, N. O'Donnell S1778; Hyden area, 23 Nov. 1970, N. O'Donnell S1334.

The specific epithet refers to the form of the inflorescence.

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