

Four new names for *Pimelea* species (Thymelaeaceae) represented in the Perth Region

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Abstract

Rye, B. L. Four new names for *Pimelea* species (Thymelaeaceae) represented in the Perth Region. Nuytsia 5(1): 1-11 (1984). Descriptions of three new *Pimelea* species (*P. brevistyla* Rye, *P. calcicola* Rye and *P. ciliata* Rye) are given in preparation for the "Flora of the Perth Region". A further species, which appears to be rare and endemic to the Perth Region, is given the new name *P. rara* Rye, based on *P. lehmanniana* Meissner var. *ligustrinoides* Benth.

Introduction

The Perth Region is defined for the proposed regional flora as the coastal strip of land extending from Gingin to Boyanup and inland to the highest peaks along the Darling Range (Marchant & Perry 1981). It contains 19 of the approximately 45 *Pimelea* species recorded for Western Australia. Three of the species occurring in the Perth Region are undescribed and another has been described only as a variety. These taxa are described here, prior to my projected revision of the genus in Western Australia, so that the names can be used in the proposed "Flora of the Perth Region".

As in other Thymelaeaceae, *Pimelea* species have a floral tube consisting of outer axial tissue and inner tissue derived from the corolla and stamen whorls (Bunniger 1972). Calyx tissue arises at the summit of the axial part of the floral tube; hence the calyx apparently consists only of the so-called 'calyx lobes', which should, therefore, be known as sepals. In *Pimelea*, four sepals and two (very rarely one) free stamen filaments arise at the summit of the floral tube but the corolla lobes have been lost. The floral tube has a swollen basal portion surrounding the ovary or fruit and a more cylindrical, usually much longer, upper portion enclosing much of the style. For convenience, these parts of the floral tube will be referred to here as the ovary and style portions. However, these portions should not be taken as indicating the precise lengths of the ovary and enclosed style respectively.

Species descriptions

Pimelea brevistyla Rye, sp. nov. (Figure 1)

Planta inter *Pimeleam preissii* Meissner et *P. ciliatam* Rye quasi intermedia, a priore differt tubo florali non circumscisso, parte centrali pilis divaricatis obsito; a posteriore differt stylo brevie et staminibus subsessilibus connectivo lato plano.

Typus: Glenburn Rd, Glen Forrest, Western Australia, 6 Oct. 1983, N. Cohen 1002 (holo: PERTH; iso: CANB, K, MEL, NSW).

Somewhat intermediate between *Pimelea preissii* Meissner and *P. ciliata* Rye, differing from the former in the lack of circumscission and the long spreading hairs on the central part of the floral tube; differing from the latter in the short style and the subsessile stamens, with a broad flat connective.

Shrub erect, to 1.5 m tall, glabrous except for the inflorescences. *Stems* apically red-brown, becoming grey with age. *Leaves* opposite, decussate, spreading; *petiole* 0.5-1.5 mm long; *lamina* usually narrowly ovate, 12-28 × 2-3.5 mm, concave or flat, tapering at both ends, often with a conspicuous yellowish midrib; the lateral margins incurved (when dry). *Inflorescence* a head-like condensed raceme, terminal, erect, of numerous flowers. *Involucral bracts* 4 or 6, yellowish, 8-22 mm long, acute or acuminate; *outer bracts* glabrous, often separated by distinct internodes from the inner pair, the outermost pair (if 6 bracts present) often much more leaf-like than the others; *inner bract pair* broadly ovate-elliptic, 7-13 mm broad, much thinner than the leaves, glabrous outside, silky-hairy inside, the lateral margins densely ciliate. *Flowers* bisexual; *pedicel* c. 1 mm long, silky-hairy. *Floral tube* not circumscissile; *ovary portion* brown, ellipsoid, 2-4 mm long, prominently 8-ribbed, appearing glabrous but usually sparsely covered by minute reflexed or widely spreading hairs; *style portion* expanding gradually to c. 1 mm in diameter at the summit, 6-10 mm long, glabrous inside; lower half of the style portion brown, prominently ribbed, with minute hairs similar to those on the ovary portion, mixed (at least in the upper part) with spreading hairs 3-4 mm long; upper half of the style portion white, densely silky-hairy with appressed hairs to 1 mm long. *Sepals* spreading, white, ovate, 3-6 mm long, obtuse, the outside with a similar vestiture to that of the upper part of the floral tube, the inside more sparsely hairy or glabrous. *Stamens* appearing sessile, the filaments c. 0.25 mm long; *anther* oblong, 1-2 × c. 0.7 mm; cells parallel on the inner face of a flat dorsal connective, which extends the full width of the anther. *Ovary* glabrous. *Style* c. as long as the style portion of the floral tube, the *stigma* usually borne in the throat of the tube.

Other specimens examined. WESTERN AUSTRALIA: Muntadgin, E. T. Bailey 686 (PERTH); Wyalkatchem, Oct. 1937, W. E. Blackall s.n. (PERTH); Smith's Mill [Glen Forrest], Sept. 1901, Diels & Pritzel s.n. (PERTH); Karragullen, A. R. Fairall 319A (PERTH); Serpentine Falls, J. W. Green 361 (PERTH); Merredin, M. Koch 2772 (MEL); Merredin, M. Koch 2843 (MEL); Kellerberrin, Sept. 1897, R. B. Leake s.n. (PERTH); 13 mi [c. 21 km] NE Hyden, K. Newbey 1090 (PERTH); Serpentine, Sept. 1922, G. E. Perrin s.n. (MEL); 1 km from Wubin to Brinbro, M. E. Phillips 930 (CBG, PERTH); 1 mi [c. 1.6 km] S Wubin, 2 Oct. 1962, M. E. Phillips, s.n. (CBG); 5.3 mi [c. 8 km] S Wubin, M. E. Phillips 2928 (CBG); Darling Range, Sept. 1901, E. Pritzel s.n. (PERTH); 12 mi [c. 19 km] E Ballidu, R. D. Royce 2132 (PERTH); Helena Valley, J. Seabrook 584, (PERTH); Mt Caroline, 1890, G. Sewell s.n. (MEL); Ca 50 km NNW Merredin, D. J. E. Whibley 4726 (PERTH).

Distribution and habitat. The species occurs both in the Darling Range near Perth and in the wheatbelt, the two areas separated by over 130 km (Figure 3A). The wheatbelt localities extend about 335 km in a north-west to south-east direction from Wubin to Hyden respectively. In the Darling Range, *P. brevistyla* has been recorded in gravelly sand and on granitic slopes. The habitat of the wheatbelt populations is uncertain but two of the known localities are probably granite outcrops.

Flowering period. August-October.

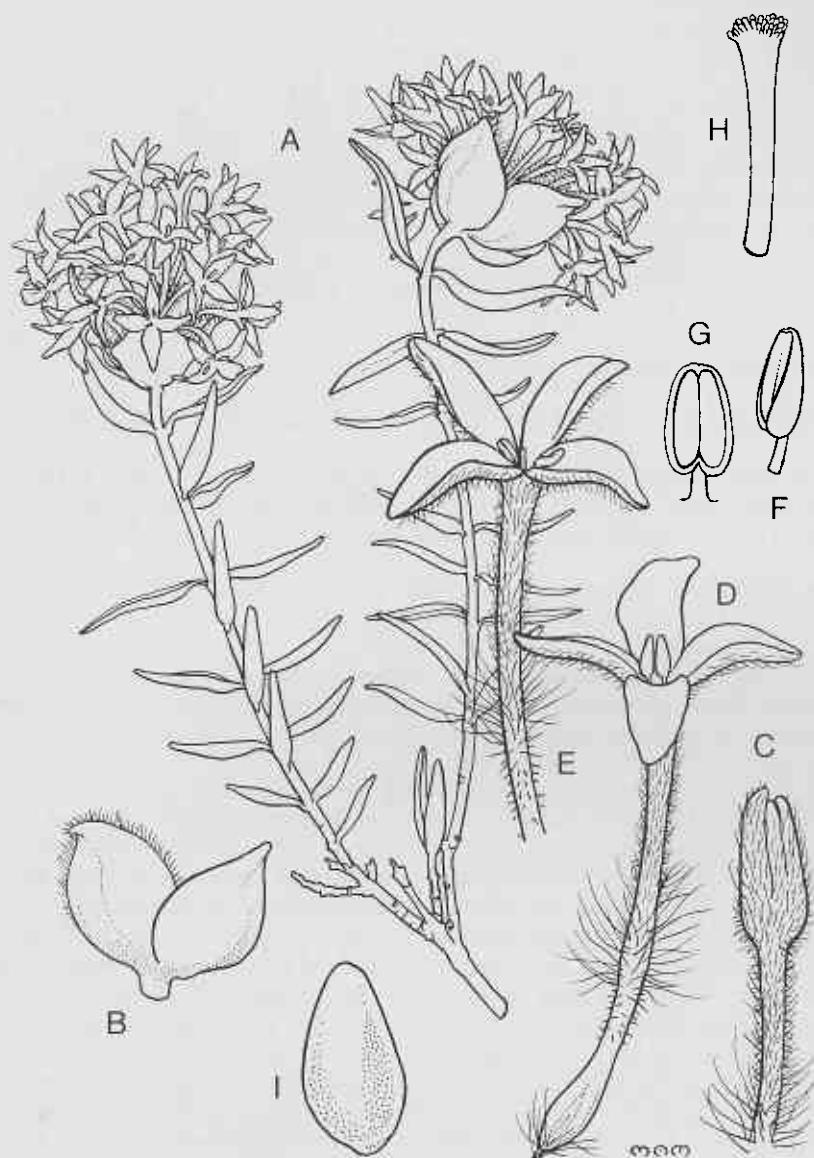


Figure 1. *Pimelea brevistyla*. A—Flowering branch. B—An outer and an inner bract. C—Flower bud. D—Newly opened flower. E—Mature flower. F—Side view of anther. G—Inner face of anther. H—Ovary. I—Upper style and stigma.

Drawn from fresh material collected at the type locality.

Discussion. This species does not appear to have any very close relatives. It bridges the gap between sect. *Heterolaena*, which includes *Pimelea ciliata*, and sect. *Epallage*, which includes *P. preissii*.

In the Darling Range, *Pimelea brevistyla* has leaves 22-28 mm long, involucre bracts 12-22 mm long, sepals 5-6 mm long and the style portion of the floral tube is 8-10 mm long. Wheatbelt specimens have shorter leaves and flowers, not overlapping the range of measurements given for the Darling Range specimens. These differences may result from the difference in rainfall between the two areas, the wheatbelt localities receiving less than 750 mm mean annual rainfall whereas the Darling Range receives over 1 050 mm. There are no obvious topographic or edaphic reasons for the disjunction in the known range of the species. It could possibly be due to inadequate collecting or to a paucity of granite outcrops in the intervening area.

Derivation of name. *Brevis* (L)—short, *stylus* (L)—style.

Pimelea calcicola Rye, sp. nov. (Figure 2)

[*Pimelea graciliflora* auctt. non Hook.: Meissner in Lehm., Pl. Preiss. 1: 605 (1845).]

Pimeleae sylvestri R.Br. affinis a qua differt bracteis fructiferis non reflexis, tubo florali magis cylindraco, antheris late oblongo-ellipsoideis, carneis, connectivo dorso plano, thecis in facie adaxiali connectivi parallelis.

Typus: Cromford Way, Carine, Perth, Western Australia, 10 Oct. 1983, N. Cohen 1007 (holo: PERTH; iso: CANB, K, MEL, NSW).

Related to *Pimelea sylvestris* R.Br. but differs in the unreflexed fruiting bracts, more cylindrical floral tube, deep pink and broadly oblong-elliptic anthers and flat dorsal connective, with the anther cells lying parallel on the inside.

Shrub erect, to 1 m tall, with a single main stem, glabrous. *Stems* apically pale green (sometimes pink-tinged), soon becoming red-brown then grey. *Leaves* opposite, decussate, usually spreading; *petiole* c. 1 mm long; *lamina* pale green (when dry), narrowly elliptic to elliptic, 17-27 × 4-7 mm, flat, with a conspicuous yellowish midrib; the lateral margins slightly incurved. *Inflorescence* a head-like condensed raceme, terminal, erect, of numerous flowers. *Involucre bracts* 6 (rarely 4), leaf-like, ovate, 12-17 mm long, glabrous, not becoming reflexed in the fruit. *Flowers* bisexual, pale to deep pink, the lower part more deeply coloured; *pedicel* to c. 1 mm long, silky-hairy. *Floral tube* circumscissile; *ovary portion* 3.5-4 × c. 1.5 mm, glabrous; *style portion* cylindrical, expanding only slightly throughout its length to a maximum of c. 1.5 mm in diameter at the summit, 9-14 mm long, distinctly 8-veined, glabrous outside, silky-hairy inside in the upper half, the circumscission point distinct 1-1.5 mm above the summit of the ovary portion. *Sepals* somewhat spreading, ovate, 2.5-5 mm long, concave, glabrous, the midrib thickened and incurved at the summit. *Stamens* 2.5-4 mm long; *anther* orange inside at dehiscence, rapidly becoming deep pink throughout, broadly oblong-elliptic, c. 0.8 × 0.5 mm; connective flat, almost as broad as the anther, the cells parallel on the inner face. *Ovary* silky-hairy at the summit. *Style* 15-20 mm long.

Other specimens examined. WESTERN AUSTRALIA: South of Fremantle, Sept. 1902, C. Andrews s.n. (PERTH); Mandurah, Aug. 1961, J. Burbidge s.n. (CANB); 29.6 mi [c. 48 km] S Fremantle, 3 Oct. 1968, E. M. Canning s.n. (CBG); Yanchep National Park, 5 Oct. 1968, E. M. Canning s.n. (CBG); Mandurah, C. F. Davies 138 (PERTH); Burns Beach Rd, H. Demarz 359 (PERTH); Mandurah, Oct. 1964, C. A. Gardner s.n. (PERTH); Madora Beach settlement, B. Haberley 201 (PERTH); North Fremantle, 3 Nov. 1897, R. Helms s.n. (PERTH); Yanchep National Park,

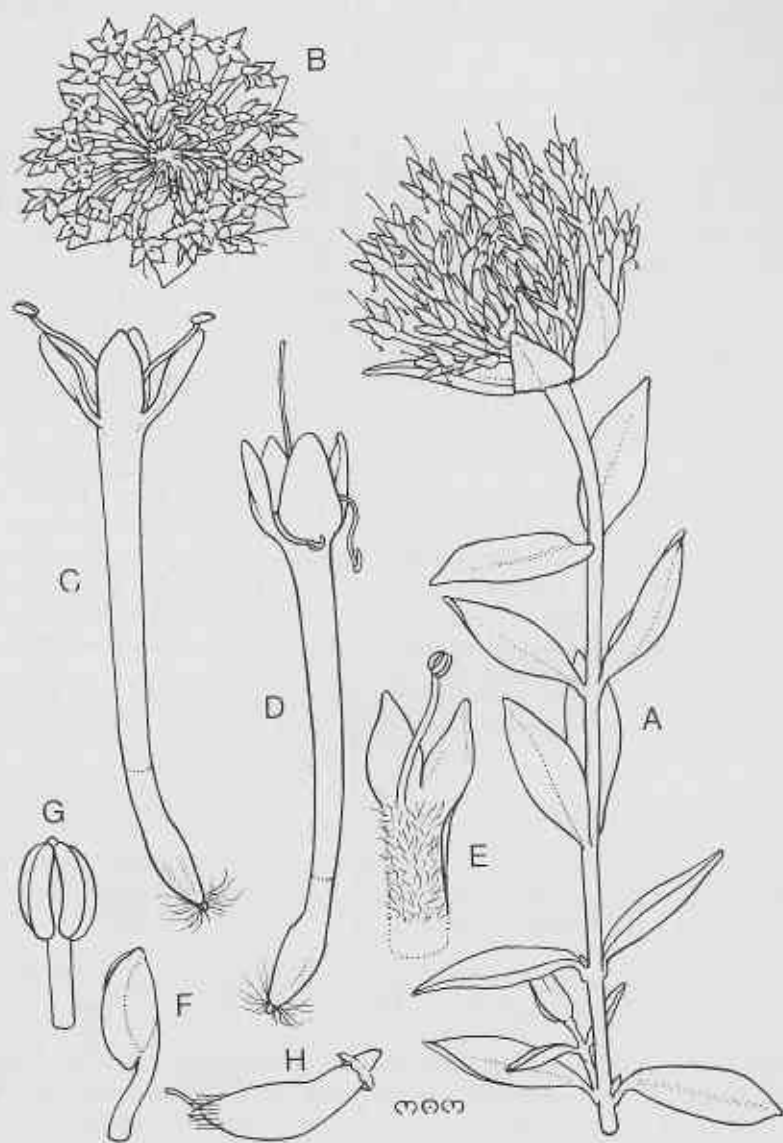


Figure 2. *Pimelea calcicola*. A—Flowering stem. B—Top view of inflorescence. C—Flower with mature anthers but immature style. D—Flower with mature style and finished anthers. E—Inside portion of upper tube. F—Side view of anther. G—Inner face of anther. H—Ovary.

Drawn from fresh material collected at the type locality.

A. M. James 49 (PERTH); 24 mi peg [38 km] on Yanchep Road, F. Lullfitz 3700 (PERTH); The Plains, near Mandurah, V. Mann & A. S. George 32 (PERTH); Near Coogee, s.d., F. Mueller s.n. (MEL); S. loc., F. Mueller 165 (MEL); S. loc., F. Mueller 1274 (MEL); Yalgorup National Park, S. Paust 1341 (PERTH); Yanchep National Park, 27 Oct. 1962, M. E. Phillips s.n. (CBG); North of Wanneroo, F. G. Smith 1584. (PERTH); Victoria Park, J. L. Steedman s.n. (NSW); 24 mi [c. 38 km] Perth to Yanchep, 5 Oct. 1968, J. W. Wrigley s.n. (CBG); S. loc., s. coll. (MEL 102496).

Distribution and habitat. Extends about 150 km from Yanchep National Park in the north to Yalgorup National Park in the south (Figure 3B), occurring close to the coast associated with limestone.

Flowering period. September–November.

Discussion. Several authors (e.g. Diels & Pritzel 1904, Beard 1970) have followed Meissner's misapplication of the name *Pimelea graciliflora* to this species. *Pimelea graciliflora* is conspecific with *P. sylvestris* R.Br., the closest relative of *P. calcicola*. As no type specimen has been located for *P. graciliflora*, the type description and illustration must be relied upon to identify the species. The taxon was reportedly grown from seed collected at King George Sound (Albany). Its flower colour and stamens were typical of *P. sylvestris* but the illustration suggests that the floral tube was more cylindrical than usual. *Pimelea sylvestris* typically has pure white flowers, although a few specimens are pale pink or pink-tinged, and its floral tube shows a more obvious expansion at the summit than in *P. calcicola*. In *P. sylvestris*, the involucre bracts become reflexed after flowering is completed and are often dark purple or black on the undersurface. The anthers are orange, more elongated (rounded oblong) than in *P. calcicola*, with the connective bent so that the cells are divergent rather than introrse. The two species are allopatric, the closest occurrences of *P. sylvestris* to *P. calcicola* being along the Darling Range in the vicinity of Perth (Figure 3B). However, *P. sylvestris* does occur on the coastal plain both north and south of *P. calcicola*'s range and occasionally occurs on limestone. Populations of *P. sylvestris* occurring on limestone in the north are much more similar to *P. calcicola* than those occurring elsewhere.

Derivation of name. *Calcis* (L)—limestone, *cola* (L)—an inhabitant, referring to habitat.

Pimelea ciliata Rye, sp. nov.

Pimelea roseae R. Br. affinis a qua bracteis involucri multiciliatis minus productis, staminibus longioribus, floribus albis vel pallide roseis, tubo florali parte ovarii plerumque pilis longis carentibus differt.

Typus: Glenburn Rd, Glen Forrest, Western Australia, 6 Oct. 1983, N. Cohen 1001 (holo: PERTH; iso: CANB, K, MEL, NSW).

Related to *Pimelea rosea* R. Br. but differs in the more ciliate and less elongated involucre bracts, longer stamens, white or pale pink flower colour and, usually, absence of long hairs on the portion of the floral tube surrounding the ovary.

Shrub erect, to 1 m high, glabrous except for the inflorescences. *Stems* apically red-brown or orange-brown, becoming dark grey with age. *Leaves* opposite, decussate, usually widely spreading; *petiole* to c. 1 mm long; *lamina* darker on the upper surface, narrowly elliptic-ovate, 7–22 × 2–7 mm, tapering to the base, the lateral margins somewhat recurved; *apex* acute or acuminate, recurved. *Inflorescence* a head-like condensed raceme with an almost flat receptacle, erect, of numerous flowers. *Involucre bracts* 4–8, usually pinkish, sessile with a broad base, ovate or broadly ovate, 9–13 mm long, with ciliate lateral margins, otherwise glabrous; cilia long, often fairly dense. *Flowers* bisexual, white or pale pink; *pedicel* 1–2 mm long, with erect hairs c. 3 mm long. *Floral tube* 13–15 mm long, not circumscissile, glabrous inside; *ovary portion* strongly 8-ribbed, with numerous very short spreading hairs, very rarely with a few long hairs in the upper part; *style portion* c. 1.5 mm in diameter at

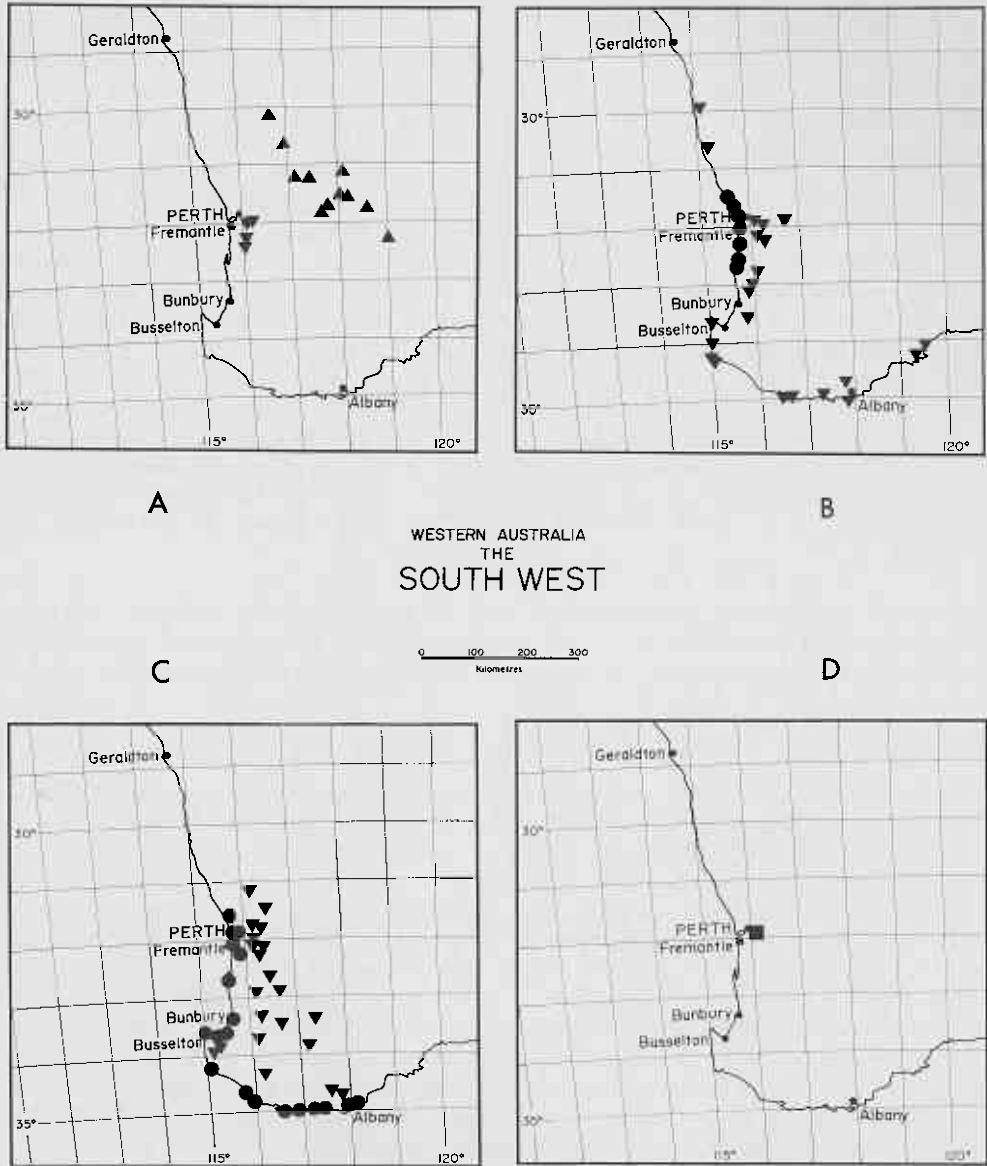


Figure 3. Distribution maps. A—*Pimelea brevistyla*, Darling Range localities ▼ and wheatbelt localities ▲. B—*P. calcicola* ● and *P. sylvestris* ▼. C—*P. ciliata* ▼ and *P. rosea* ●. D—*P. rara* ■.

the summit, 7-9 mm long; lower half of the style portion ribbed, silky-hairy with widely spreading hairs 3-4 mm long mixed with a few tiny hairs similar to those on the ovary portion; upper half of the style portion covered by very fine appressed hairs mostly c. 1 mm long. *Sepals* widely spreading, ovate or narrowly ovate, 3-5.5 mm long, obtuse, the outside with similar hairs to those on the upper part of the floral tube mixed with large erect hairs, glabrous inside. *Stamens* 3.25-5.5 mm long; *anther* 0.75-1.5 x c. 0.3 mm; cells divergent when dehiscent. *Ovary* glabrous. *Style* 11-15 mm long.

Selected specimens examined. WESTERN AUSTRALIA: Manjimup, *H. J. Anderson* 28 (PERTH); Armadale, Sept. 1901, *C. Andrews* s.n. (PERTH); West of Wagin, *J. S. Beard* 2107 (PERTH); 42 mi [c. 68 km] Perth to Toodyay, *E. M. Canning* 2808 (CBG); 71 mi [c. 114 km] Perth to Williams, 30 Sept. 1968, *E. M. Canning* s.n. (AD, CBG); Pickering Brook, 13 Nov. 1928, *E. Dell* s.n. (PERTH); Helena Valley, *H. Demarz* 1724 (CANB); Bickley Reservoir, *H. Demarz* 6199 (PERTH); Wagin, *T. E. George* 191 (MEL); Mount Barker, *T. E. George* 561 (MEL); Wooroloo, *M. Koch* 1424 (MEL); Manjimup, *M. Koch* 2455 (MEL); Lowden, Oct. 1909, *M. Koch* s.n. (AD); York, 1880, *McHard* s.n. (MEL); Kelmscott, 11 Sept. 1897, *A. Morrison* s.n. (BRI, CANB); Darlington, 6 Oct. 1910, *A. Morrison* s.n. (BRI); 2 mi [c. 3 km] E Kojonup, *K. Newbey* 1303 (PERTH); 54 mi [c. 87 km] Perth to Williams, 16 Oct. 1962, *M. E. Phillips* s.n. (CBG); 5 mi [c. 8 km] W Darkin, *M. E. Phillips* 4005 (AD, CBG); Near Bramley, *R. Pullen* 9870 (CANB); Near Lesmurdie, *J. Pulley* 1346 (CBG); Jindong, *R. D. Royce* 2484 (PERTH); Bindoon to Moora, Aug. 1964, *E. J. Salisbury* & *C. A. Gardner* s.n. (PERTH); Mundaring Weir, 1936, *J. Scott* s.n. (NSW); Rocky Pool, Sept. 1929, *A. Steffanoni* s.n. (ADW); Stirling Range, *F. W. Went* 154 (PERTH); Cowaramup to Margaret River, *D. J. E. Whibley* 5044 (AD, PERTH); Manjimup to Nannup, *D. J. E. Whibley* 3242 (AD, NT); Near Porongurup Range, *P. G. Wilson* 3369 (AD, CBG, PERTH); Collie River, *P. G. Wilson* 3761 (PERTH);

Distribution and habitat. Extends from north of Bindoon (north of Perth) to the extreme south-west of the State and to the Porongurup Range near Albany (Figure 3C). Recorded from heavy soils in lateritic or granitic areas, usually on hills.

Flowering period. August-November.

Discussion. Bentham (1873) and later authors have apparently regarded *Pimelea ciliata* as a white-flowered variant of *P. rosea* R. Br. Photographs of both species, regarded as two variants of *P. rosea*, are given in Erickson et al. (1979: 27, 48). In the Perth Region the two species are quite distinct in their morphology and habitat. Apart from the differences noted in the diagnosis, *Pimelea rosea* has short sepals (2.5-3.5 mm) and occurs along the coast, whereas *P. ciliata* has sepals 4-5.5 mm long and occurs on or near the Darling Scarp and Range. *P. ciliata* usually has white flowers, the few pink-flowered specimens being a much paler pink than in *P. rosea*. However, *P. ciliata* becomes progressively more like *P. rosea* in some of these characters towards the south of its range, where it frequently has pale pink flowers, shorter sepals (3-4 mm) and stamens only just exceeding the sepals. In *P. rosea* the stamens are normally shorter than the sepals, although a few specimens on the south coast, especially near Albany, have stamens slightly exceeding the sepals. Throughout its range, *P. rosea* tends to have softer leaves than *P. ciliata*.

In the extreme south-west corner of Western Australia, *Pimelea ciliata* and *P. rosea* are readily confused. They occur close together and may be sympatric (Figure 3C), although on the whole they appear to be separated by the same habitat difference as in the Perth Region. The south-western specimens of *P. ciliata* can be distinguished by their longer floral tubes, almost invariable lack of long hairs on the ovary portion of the floral tube, slightly longer stamens, which just exceed the sepals, more ciliate bracts and paler flower colour, although a few *P. rosea* specimens in this area are also rather pale. *Pimelea ciliata* can also be confused in the extreme south-west with *P. hispida* R.Br., which differs in having rather dense hairs on the inside of the involucre bracts. Possibly, the three species occasionally hybridize because a few specimens of each possess a character more typical of one of the other species.

Derivation of name. Cilium (L), referring to the cilia on the involucre bracts.

Pimelea rara Rye, nom. et stat. nov. (Figure 4)

Pimelea lehmanniana Meissner var. *ligustrinoides* Benth. Fl. Austral. 6: 9 (1873).
Type: Swan River (Western Australia), *Drummond*, 1st collection (lecto: K; iso: K, NY).

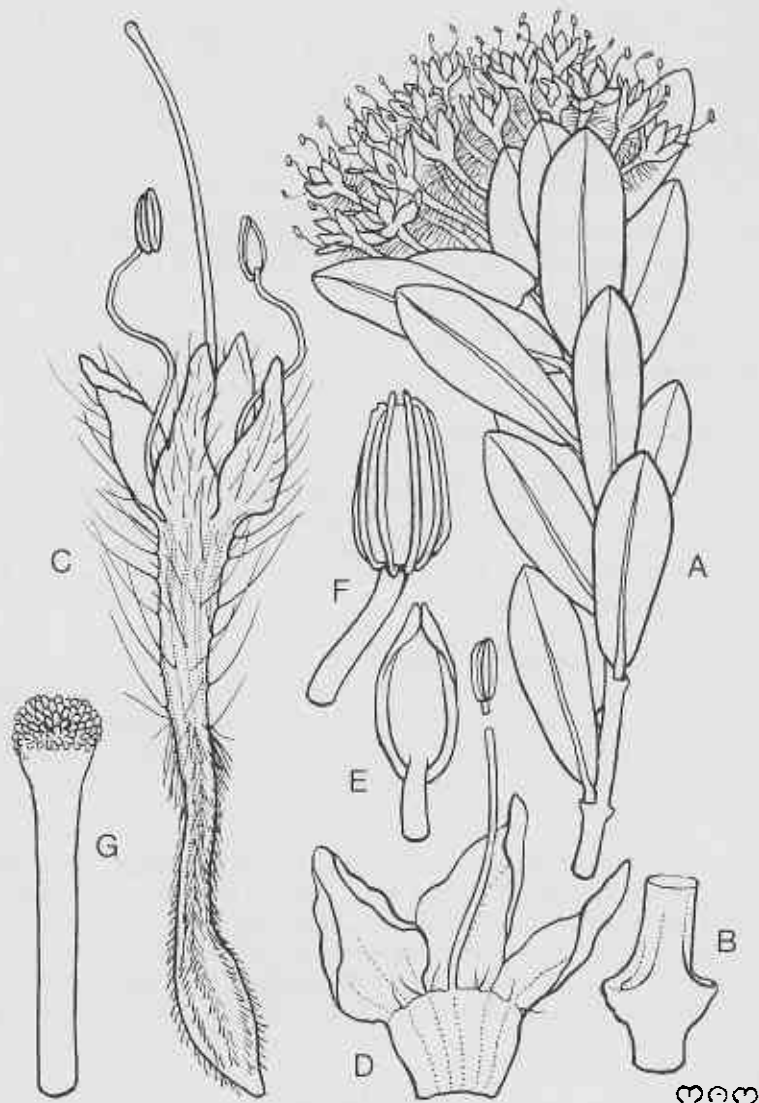


Figure 4. *Pimelea rara*. A—Flowering stem. B—Portion of stem showing leaf bases. C—Flower. D—Portion of flower showing hairs at the throat. E—Outer face of anther. F—Inner face of anther. G—Upper style. Drawn from W.A. Ross 435 and the lectotype.

Shrub, erect, to at least 0.35 m tall, glabrous except for the inflorescences. *Stems* dark brown to black, apically with a reddish tinge. *Leaves* opposite, decussate; *petiole* c. 1 mm long; *lamina* dull bluish green (when dry), elliptic or obovate, c. 30 x 8 mm, flat, with prominent yellowish lateral margins and midrib. *Inflorescence* a head-like condensed raceme, terminal, erect, of numerous flowers. *Involucral bracts* 4 or 6, leaf-like, broadly ovate, 13-16 x c. 10 mm; *outer bracts* glabrous; *inner bract pair* sparsely silky-hairy inside, the margin ciliate except near the apex. *Flowers* bisexual; *pedicel* c. 0.6 mm long, silky-hairy. *Floral tube* probably not circumscissile, c. 11 mm long, entirely glabrous inside or with a circle of hairs c. 0.5 mm long at the throat; *ovary portion* ellipsoid, c. 3 mm long, 8-ribbed, covered by reflexed appressed hairs c. 0.5 mm long; *style portion* expanding to c. 1 mm in diameter at the summit, c. 8 mm long, prominently 8-ribbed, with long spreading hairs 2.5-3 mm long above a basal belt with short hairs similar to those on the ovary portion. *Sepals* spreading, ovate, c. 3 mm long, the outside sparsely covered by rather short silky hairs, glabrous inside. *Stamens* c. 5 mm long; *anther* c. 1.5 x 0.5 mm, broadest near the base; cells divergent when dehiscent. *Ovary* glabrous. *Style* c. 13.5 mm long.

Other specimens examined. WESTERN AUSTRALIA: Between Parkerville and Smith's Mill [Glen Forrest], Jan. 1904, W. V. Fitzgerald s.n. (NSW); Parkerville, W. A. Ross 435, (PERTH).

Distribution and habitat. Only known from near Parkerville in the Darling Range east of Perth (Figure 3D).

Flowering period. December-January.

Conservation status. The species appears to be either very rare and geographically restricted or extinct. However, its exact status cannot be determined because no recent attempt has been made to collect or survey it. There are only three known collections, two from the vicinity of Parkerville and one of unknown origin, the most recent collection having been made in 1919.

Discussion. The summer flowering time of *Pimelea rara* is unusual as the predominant flowering period for the genus in south-western Australia is July-November. In floral morphology, *P. rara* is closest to *P. lehmanniana*, but there are many differences in the distribution, orientation and size of the hairs on the floral tube. For example, the basal hairs in *P. lehmanniana* (if present) are much thicker and are spreading rather than reflexed.

The leaves of *Pimelea rara* are similar in gross morphology to an eastern Australian species, *P. macrostegia* (Benth.) J. M. Black. The latter was once considered to be just a variant of *P. ligustrina* Labill., hence Bentham's choice of the epithet *ligustrinoides* for *P. rara*. However, *P. ligustrina* is quite different in both floral and leaf morphology from *P. rara*. As Bentham's epithet is inappropriate for the new species, I have chosen a new epithet rather than making a new combination.

Acknowledgements

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