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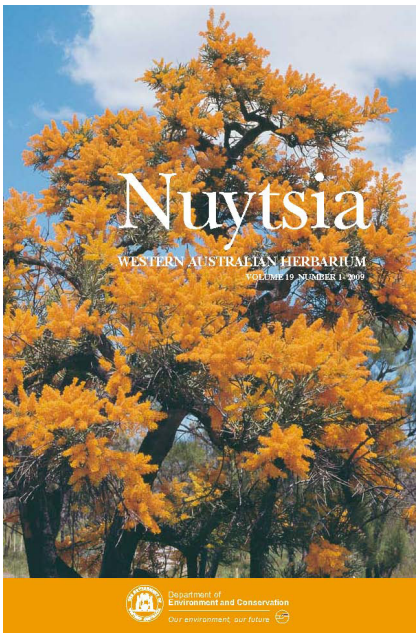

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A new species of *Pultenaea* (Mirbelieae: Fabaceae) from Kundip, Western Australia

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Abstract

Wilkins, C.F., Orthia, L.A. & Crisp, M.D. A new species of *Pultenaea* (Mirbelieae: Fabaceae) from Kundip, Western Australia. *Nuytsia* 19(1): 191–196 (2009). A new species *Pultenaea craigiana* C.F.Wilkins, Orthia & Crisp is described. It has affinity to *P. brachytropis* Benth. This species is endemic to the south-west of Western Australia and is a priority species for conservation. Conservation notes and a distribution map are provided.

Introduction

Pultenaea Sm. is restricted to the south-west of Western Australia, and the south and east of Australia. The plants are shrubs occurring in forest, woodland, shrubland or heathland on oligotrophic soils. Common names include 'egg and bacon peas' and 'bush peas'. As currently circumscribed, the genus includes 26 species in south-west Western Australia, 87 species east of the Nullarbor Plain and four species occurring both sides of the Nullabor Plain (de Kok &West 2002, 2003, 2004; Orthia *et al.* 2005a).

A recent cladistic analysis of DNA sequences (Orthia *et al*. 2005b) showed no support for monophyly of *Pultenaea* and the species fell into six well supported but separate lineages. The authors suggested either recognising each of the distinct phylogenetic units as separate genera, or combining all *c.* 470 species of the 'Mirbelia' group of genera into an expanded concept of *Pultenaea* (Orthia *et al.* 2005b, 2005c). However, no formal changes to genera in this group have been made yet and *Pultenaea* retains its previous circumscription pending further research. *Pultenaea* sp. Kundip (G.F. Craig 6008) was discovered after the revision of Orthia *et al.* (2005a) was completed. It requires urgent description as a priority species for conservation due to its restricted distribution and presence on a mining lease. A molecular phylogenetic analysis of trnL-F sequences from cpDNA (unpublished data) grouped *P.* sp. Kundip (G.F. Craig 6008) weakly with *P. brachytropis* Benth., and not with any of the six main clades of *Pultenaea* found by Orthia *et al.* (2005b). The species is here placed in *Pultenaea* until further research is completed (M.D. Crisp in progress).

Methods

The description is based on herbarium specimens from PERTH and UWA. Distribution maps were compiled using the Online Map Creation website (http://www.aquarius.geomar.de/omc_intro.html).

Key to relatives of *Pultenaea craigiana* in Western Australia (modified from Orthia *et al.* 2005a)

The following species share these features. *Stipules* fused to at least one third of their length behind the petiole. *Two upper calyx lobes* are fused for almost their entire length, and the sinus between them < sinus between the lower lobes; *upper lobes* ± triangular or narrowly triangular and widest at the base. *Ovaries and pods* glabrous inside. Numbering of couplets follows Orthia *et al*.

19. Leaf margins recurved ..... **P. brachytropis**
19: Leaf margins incurved ..... **20.**

20. Bracteoles tridentate, with free stipules ..... **P. vestita**
20: Bracteoles ovate, without free stipules ..... **21.**

21. Leaf with a sharp apical point ..... **P. juniperina**
21: Leaf without a sharp point ..... **21a.**

21a. Leaf straight or gently incurved towards an acute apex ..... **P. tenuifolia**
21a: Leaf recurved in upper third; apex clavate, obtuse ..... **P. craigiana**

Species description

Pultenaea craigiana C.F.Wilkins, Orthia & Crisp, *sp. nov.*

B. brachytropi Benth. floribus inflorescentiisque et stipulis connatis similis sed lamina folii marginibus involutis nec recurvis differt.

Typus: southern limit of Ravensthorpe Range, Western Australia, [precise locality withheld for conservation reasons], 5 November 2004, *G.F. Craig* 6148 **(***holo*: PERTH 07854765; *iso*: CANB; MEL).

Pultenaea sp. Kundip (G.F. Craig 6008), Western Australian Herbarium, in *FloraBase*, http://florabase.dec.wa.gov.au [accessed 16 March 2008].

Shrub upright, spindly, rounded, 0.15–0.5(–1) high, 0.3–0.5 m wide. *Branchlets* apically with dense, appressed, white, straight hairs *c.* 0.2–0.3 mm long, glabrescent, without tubercles, not spinescent, ascending. *Stipules* red-brown becoming black, persistent, the bases fused to each other across the stem, 0.6–1.3 × 0.3–0.5 mm. *Leaves* divergent or ascending, spirally arranged, longer than internodes, *petiole* pulvinate, cream, 0.4–0.8 mm long; *blade* narrowly-obovate to obovate, 1.3–8 × 0.5–0.9 mm, involute; abaxial surface yellow-green, with scattered, white, appressed hairs on new growth, shortly glabrescent; adaxial surface concealed; apex clavate, obtuse, with apical 1/3 of leaf recurved.

Flowers axillary, solitary, but grouped towards apex. *Bracts* absent, each flower subtended by a leaf and stipules. *Peduncle* absent. *Pedicels* straight, 0.2–0.5 mm long. *Buds* 2.5–4.5 × 1.5–2.5 mm, with scattered, appressed or spreading, straight, white hairs 0.2–0.35 mm long, bud apex rounded, apiculum absent. *Bracteoles* persistent just below the calyx, red-brown, ovate, 0.9–1.3 × 0.4–0.6 mm, margin denticulate, apex acute. *Hypanthium* 0.4–0.6 mm long. *Calyx* not prominently ribbed; lobes asymmetrical, the abaxial three imbricate in bud, adaxial two valvate; tube green; lobes red with a dark red marking at junction present or absent; adaxial lobes falcate, 0.5–0.6 × 1–1.3 mm, fused for 2–3.9 mm; middle and lateral abaxial lobes 1.5–2.4 × 0.7–1.2 mm, fused for 1.0–1.8 mm; apex of all lobes acute. *Standard* with a claw 2–3.3 × 0.5–0.6 mm; lamina yellow with flares of red following veins on upper surface surrounding a basal, ovate, pale lemon eye, broadly ovate, non-auriculate, 3.5–4.2 × 5.3–8.2 mm, emarginate indentation 0.2–0.4 mm deep. *Wings* with a claw1.5–2 × 0.4–0.5 mm; lamina with an adaxial spur; lamina centre with red markings, towards apex yellow, straight, oblong, or scarcely obovate, 4–4.3 × 1.4–1.8 mm; apex rounded. *Keel* with a claw 1.4–1.7 × 0.5 mm; lamina dark red fading to the base, and tip with narrow yellow margin; straight, scarcely obovate, 3.3–5.5 × 1.3–2.1 mm; apex rounded. *Stamen* filaments progressively shorter from adaxial to abaxial filament, and alternating at base scarcely narrower and broader, 1.7–4.6 × 0.1–0.2 mm; *anthers* cream, adaxial anther *c.* 0.2 × 0.2 mm, remainder 0.3–0.4 × 0.25–0.35 mm. *Gynoecium* without a stipe; *ovary* 1.1–1.2 × 0.4–0.7 mm, laterally flattened, with dense, appressed, straight, white hairs *c.* 0.4 mm long, evenly distributed; *style* hooked, 1.5–2.1 × 0.2–0.25 mm, with scattered hairs throughout; *stigma* capitate; *ovules* two, funicle *c.* 0.1 mm long. *Pod* ellipsoid, inflated, apically dehiscent, 3.6–4.3 × 2.2–2.6 mm, the outer surface with sparse, white, appressed hairs to 0.8 mm long over smaller hairs; the inner surface glossy, glabrous. *Seed* one per pod, ovoid, smooth, pale greenish-brown with black, irregular markings, 2–2.1 × 1.1–1.3 mm; *aril* yellow-white, translucent and surrounding the hilum, *c.* 1.1 × 0.7 mm. (Figures 1, 2)

Selected specimens. WESTERN AUSTRALIA: [precise localities withheld for conservation reasons] W of Ravensthorpe–Hopetoun Road, Kundip, 21 Sep. 2005, *S. Barrett* 1403, (PERTH); E of old Kundip townsite, 1 Oct. 2004, *K. Bennett s.n*. (PERTH); Tectonic Resources Mining lease, Kundip, S of Ravensthorpe, 13 Dec. 2004, *J.A. Cochrane & K. Bennett* JAC 5217 (K, PERTH); Southern sector of Kundip Mining leases, E of Kundip, 11 Dec. 2003, *G.F. Craig* 6008 (CANB, PERTH); E of Kundip, southern limit of Ravensthorpe Range, 11 Nov. 2004, *G.F. Craig* 6152 (CANB, PERTH); Ravensthorpe Range, Bonnymidgup Track, 1 Aug. 2007, *G.F. Craig* 8324 (PERTH); Kundip, 2003, *Landcare Services* LCS 10302, (PERTH); Ravensthorpe Range, ESE of Ravensthorpe, towards Jerdacuttup River, 22 Apr. 2007, *S.Kern, R. Jasper, D. Brassington* LCH 16745 (PERTH); W of Floater Road, Ravensthorpe Range, NNW of Ravensthorpe, 28 May 2007, *S.Kern, R. Jasper, D. Brassington* LCH 17139 (PERTH).

Distribution. Pultenaea craigiana is endemic to Western Australia and has a restricted distribution in the Ravensthorpe Range. It is known only from the northern area of the range and in the vicinity of the old Kundip township, in the Kundip mining lease. (Figure 3)

Habitat. This species has been collected in calcareous pale grey, or brown loam and silcrete over felsic Kybulup schist and quartz gravel, in a burnt Mallet thicket and in *Eucalyptus astringens* woodland with very open heath, or sparse shrubland. North of Ravensthorpe it has been collected in *Eucalyptus platypus* regrowth which had been scrub-rolled and burnt three years previously.

Phenology. Flowering August to November; fruiting December.

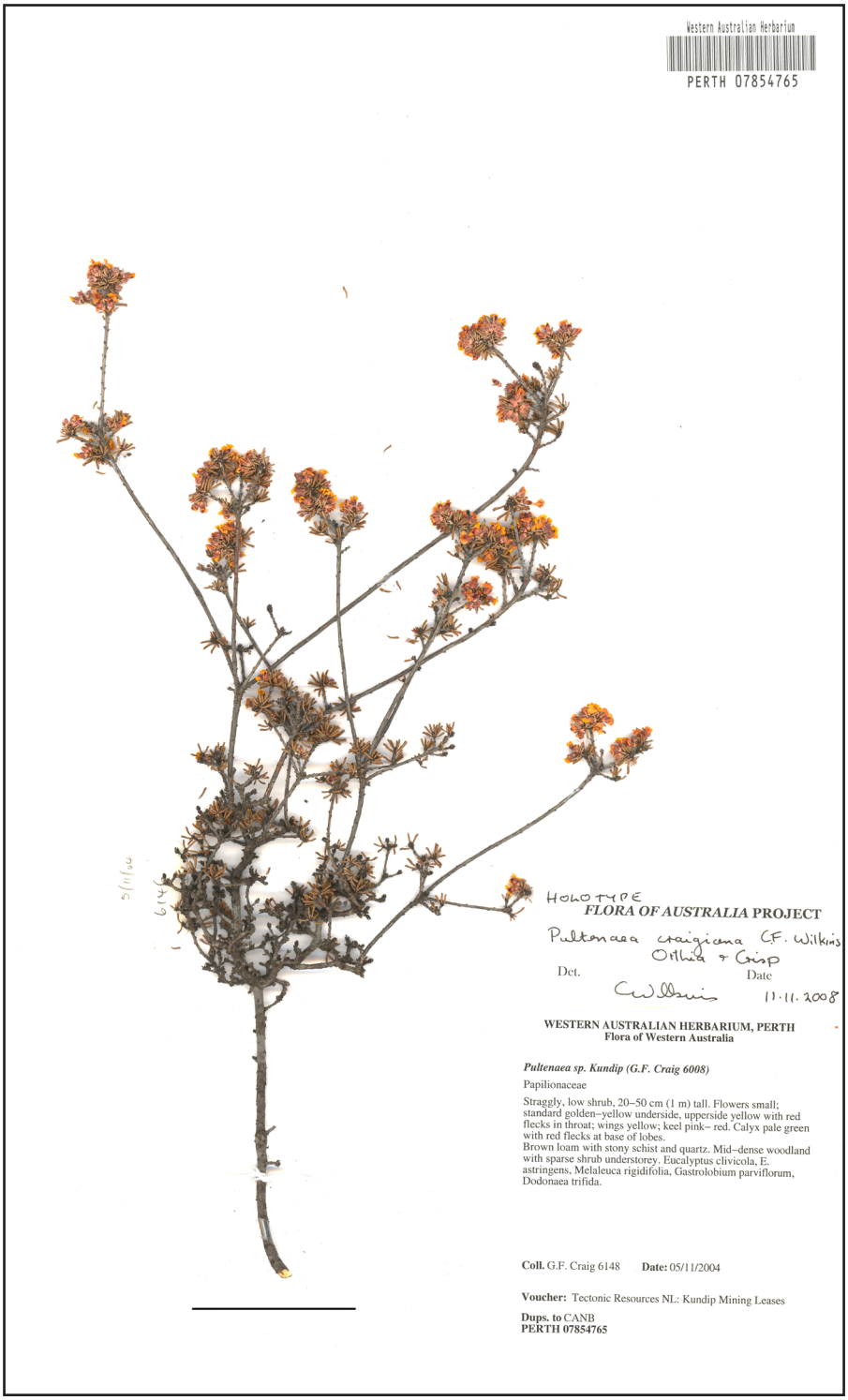

Figure 1. Holotype of *Pultenaea craigiana* C.F.Wilkins, Orthia & Crisp (PERTH 07814765), scale = 5 cm.

Figure 2. *Pultenaea craigiana*. A – habit; B – flowers. (*G. F. Craig* 6148). Photographs by G. Craig.

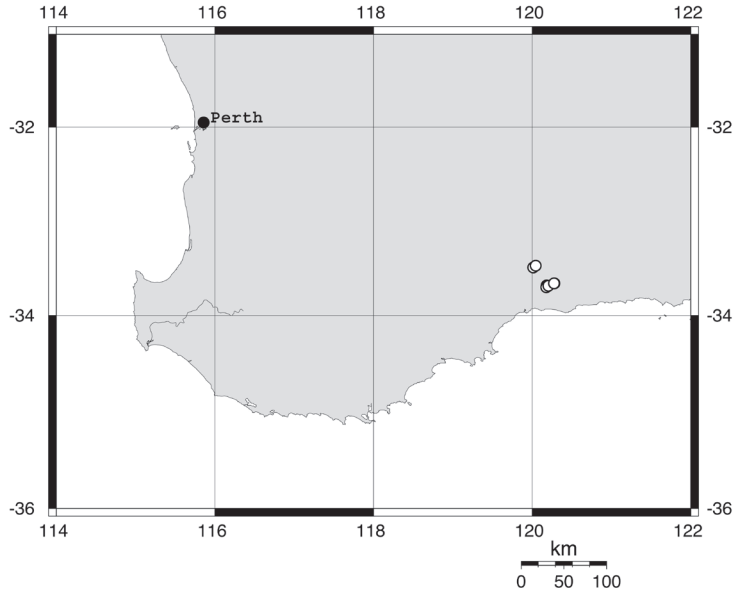

Figure 3. Distribution of *Pultenaea craigiana* (○) in Western Australia.

Conservation status. Abundant in burnt regrowth and rare in old-growth areas. Currently listed as Priority One, as *Pultenaea* sp. Kundip (G.F. Craig 6008) under the Department of Environment and Conservation's Conservation Codes for Western Australia (Atkins 2008).

Etymology. The specific epithet honours Dr Gillian Craig, the botanist who discovered this new species, and who has made a significant contribution to the conservation of Western Australian flora, especially in the Ravensthorpe area, by undertaking floristic surveys and coastal management programmes.

Notes. *Pultenaea craigiana* is possibly most closely related to *P. brachytropis*, which it closely resembles in the fused stipules and in floral and inflorescence characters, e.g. the blunt, red-tipped calyx. However, these two species are easily distinguished by the leaf blades, which have involute margins in *P. craigiana* and strongly recurved margins in *P. brachytropis*. *Pultenaea calycina* subsp. *proxena* Orthia & Chappill has similar leaves to *P. craigiana* and occurs in the Ravensthorpe area. *Pultenaea craigiana* differs from *P. calycina* subsp. *proxena* in having leaves that are involute, rather than strongly incurved and the stipules are fused together at the base rather than free. The calyx upper lobes are also less rotund and the lower three lobes are more developed.

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