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Formal naming of *Bossiaea reptans* (Fabaceae), an endangered species from the Warren region, Western Australia

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SHORT COMMUNICATION

Recent work on *Bossiaea* Vent. (Fabaceae) of Western Australia includes a full conspectus by Ross (2006), two further new species by Barrett and Barrett (2015) and a review by Keighery (2018) of the *B. eriocarpa* Benth. and *B. ornata* (Lindl.) Benth. group, including the resurrection of two species from synonymy and the description of a new species. Currently there are 42 described species in Western Australia and two phrase-named taxa (Western Australian Herbarium 1998–), of which *B*. sp. Frankland (E.M. Sandiford EMS 896) was described and illustrated by Ross (2006) but not formally named given the paucity of available material. Further study of this taxon in the field and herbarium has convinced us that it is a distinct species that merits formal description.

Bossiaea reptans T.Macfarlane & J.H.Ross, *sp. nov.*

Type: west of Frankland, Western Australia [precise locality withheld for conservation reasons], 24 October 2019, *T.D. Macfarlane & R.W. Hearn* TDM 4076 (*holo*: PERTH 07856156; *iso*: CANB, K, MEL, NSW, PERTH 09181253).

Bossiaea sp. Frankland (E.M. Sandiford EMS 896), Western Australian Herbarium, in *FloraBase*, https://florabase.dpaw.wa.gov.au/ [accessed 2 July 2019].

Illustration. J.H. Ross, *Muelleria* 23: 57, Figure 15 (2006).

Subshrub to 20 cm high, consisting of small, compact individuals or forming extensive colonies 1–10 m diam. where individuals are difficult to distinguish, the rootstock producing one to several dauciform taproots to *c.* 20 cm long and to 10 mm diam. in upper part. *Main branches* prostrate, up to 75 cm long, 1–3 mm diam., glabrous to glabrescent, often buried in leaf litter, frequently rooting at nodes with the formation of new taproots at intervals. *Lateral branches* erect or prostrate; young branchlets terete to oval in section, densely clothed with appressed to slightly spreading hairs, older branchlets with strongly spreading to erect hairs. *Leaves* alternate, all turned to upper side of prostrate

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branchlets, unifoliolate; lamina elliptic or very broadly ovate to almost rotund, 2.7–10(–13) mm long, 2.5–8(–10) mm wide, base cordate to truncate; apex appearing retuse from above, mucronate, the mucro recurved, reflexed or sometimes incurved; upper surface shiny, sparingly to fairly densely clothed with appressed antrorse hairs up to 0.5 mm long, lower surface densely clothed with appressed antrorse hairs; venation reticulodromous, the pale veins contrasting with the dark green interveinal areas especially on the adaxial surface; petiole 1–2 mm long, densely clothed with appressed to spreading hairs. *Stipules* obliquely narrowly ovate or narrowly triangular, sometimes slightly falcate, 1.5–3.1 mm long, longer than the petiole, conspicuously longitudinally striate, with conspicuous hairs on margins and occasionally the lower surface. *Flowers* solitary; pedicel 3.5–13 mm long, densely clothed with appressed to spreading hairs; *bracts* scarious, longitudinally striate, glabrous apart from marginal and apical hairs, outer basal bract ovate, to 2.2 mm long, innermost bract narrow-ovate, 1–2.3 mm long; *bracteoles* persistent, attached near the middle of the pedicel, the apex positioned well below the base of the calyx, narrowly ovate, to 2.2 mm long, scarious, longitudinally striate, hairy on margins and apex, the abaxial surface glabrous or with scattered hairs. *Calyx* densely clothed with appressed antrorse hairs; 2 upper lobes 2.3–2.9 mm long, acute, diverging, 3 lower lobes 3.5–3.9 mm long, acute; tube 2.7–3.2 mm long. *Standard* broader than long, 7–9 mm long including a 1.6–3 mm claw, 8–10 mm wide, deep yellow to apricot with a basal, dark red, horseshoe-shaped flare around the throat, paler externally with faint red lines radiating from the base; *wings* 5.4–6.8 mm long including a 1.1–2 mm claw, 1.6–2.4 mm wide, dark pinkish red; *keel* 6–8.1 mm long including a 1.5–2.6 mm claw, 2.4–2.7 mm wide, pinkish red, glabrous apically in the sinus. *Stamen filaments* 3.9–7 mm long. *Ovary* to 4 mm long on a stipe 0.7–1 mm long, 4- or 5-ovulate, densely clothed throughout with appressed antrorse hairs. *Pods* shortly stipitate (the stipe not exceeding the calyx tube), oblong, 11–16 mm long, 4–6 mm wide, flattened, base and apex both oblique, surface with moderately dense, slightly spreading antrorse hairs, the surface clearly visible through the indumentum, dull greenish maturing to brown. *Seeds* 4 or 5 per fruit, obloid, 2.2–2.6 mm long, 1.3–1.7 mm wide, pale brown, with a prominent hooked or recurved cream aril. (Figure 1)

Diagnostic features. *Bossiaea reptans* is unique in the genus in having prostrate main branches that root at the nodes. It also has the following distinguishing combination of characters: dauciform taproots; alternate leaves with an elliptic or very broadly ovate to almost rotund lamina and reticulate (reticulodromous) venation, the veins raised and conspicuously pale in contrast to the green interveinal areas; and flowers with a standard petal up to 9 mm long and a hairy ovary.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 30 Oct. 2007, *R.W. Hearn & I.R. Wheeler* TDM 4136 (PERTH); 19 Oct. 2007, *T.D. Macfarlane & R.W. Hearn* TDM 4169 (AD, CANB, MEL, PERTH (2 sheets)); 24 Oct. 2007, *T.D. Macfarlane & R.W. Hearn* TDM 4076 (PERTH); 29 Nov. 2007, *T.D. Macfarlane & R.W. Hearn* TDM 4181 (PERTH); 30 Nov. 2007, *T.D. Macfarlane & R.W. Hearn* TDM 4181a (K, PERTH); 7 Dec. 2007, *T.D. Macfarlane & R.W. Hearn* TDM 4184 (CANB, MEL, PERTH); *G.S. McCutcheon* GSM 1377, 14 Nov. 1985 (PERTH); 14 Oct. 2003, *E.M. Sandiford* EMS 896 (MEL, PERTH); 24 Jan. 2017, *J. Smith s.n.* (PERTH); 6 Oct. 2017, *J. Smith* JS 0294 (PERTH); 12 Dec. 2017, *J. Smith* JS 0293 (PERTH); 27 Nov. 2018, *J. Smith* JS 0313 (PERTH).

Phenology. Flowering mainly in October. Fruiting in November and December.

Distribution and habitat. Three populations are known over a range of 45 km in the Warren district, within the southern part of the Jarrah Forest bioregion (Department of the Environment 2013) of south-western Australia: one north-east of Manjimup and two west and north-west of Frankland. These populations occur in a national park, a reserve and on private property, and occupy low rises

Figure 1. *Bossiaea reptans*. A – flower and leaves, showing leaf indumentum; B – flower from below and immature fruit showing its form and indumentum on the calyx; C – plant habit (two plants entangled), showing the dauciform taproots and the trailing stem; D – part of leafy shoot showing leaf shape and venation; E – plants showing vertical shoots (lateral branches) rising from a dense sward with forest leaf litter. Images from *T.D. Macfarlane & R.W. Hearn* TDM 4181 (A, B, D, E) and *T.D. Macfarlane & R.W. Hearn* TDM 4076 (C). Photographs by T.D. Macfarlane (A, B, D, E.), R.W. Hearn (C).

adjacent to winter-wet depressions or subdued watercourses in Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) woodland with scattered *Xanthorrhoea preissii* and an open understorey of low shrubs, with *Hypocalymma angustifolium* being usually the most common. Individuals occur in scattered to dense populations, sometimes as carpet-like colonies where individual plants may be difficult to distinguish owing to the prostrate and nodal rooting habit.

Conservation status. *Bossiaea reptans* is listed as Endangered under State and Commonwealth legislation (Smith & Jones 2018; Department of Environment and Energy 2020), under the name *B.* sp. Frankland (E.M. Sandiford EMS 896).

Etymology. The epithet is from the Latin *reptans* (creeping, prostrate and rooting), which aptly describes the habit of the species.

Common name. Creeping Brown Pea.

Notes. *Bossiaea reptans* forms part of a small group of species with well-developed, alternate leaves and hairy ovaries (Ross 2006; Keighery 2018) but is distinguishable by its prostrate habit and frequent rooting from nodes of the main branches. It is most similar to *B. ornata* and segregate species recognised by Keighery (2018), differing further in its smaller, softer textured leaves (2.7–10(–13) mm long vs 10–70 mm). The distribution of *B. reptans* is within the range of *B. ornata*.

Bossiaea reptans has been observed resprouting after being grazed and regenerating by resprouting and seed germination after fire. Related species vary in this regard, *B. ornata* being a resprouter following fire whereas *B. eriocarpa* has both reseeder and resprouter forms (Keighery 2018).

Identification. The key of Ross (2006) distinguishes *B. reptans* (as *B*. sp. Frankland) partly by perianth length, which, as modified in the above description, no longer provides an absolute distinction. Clear identification of *B. reptans* is provided by the following modification to the key.

7. Prostrate spreading subshrub, rooting at nodes of the prostrate branches; tap-roots dauciform; standard petal 7–9 mm long..... **7. B. reptans**

7. Erect shrub; tap roots not dauciform; standard petal 8–20 mm long 8

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