

## ***Labichea rossii* (Fabaceae: Caesalpinioideae), a new species from the Yilgarn Ranges, Western Australia**

**Neil Gibson**

Science Division, Department of Environment and Conservation,  
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983  
Email: neil.gibson@dec.wa.gov.au

### **Abstract**

Gibson, N. *Labichea rossii* (Fabaceae: Caesalpinioideae), a new species from the Yilgarn Ranges, Western Australia. *Nuytsia* 21(3): 91–95 (2011). A new rare species of *Labichea* Gaudich. ex DC. is described from a ridge of Banded Iron Formation in the ranges near Mt Holland. Unlike most species in the genus, this new species, *L. rossii* N.Gibson, has very dissimilar petals more reminiscent of flowers from subfamily Faboideae.

### **Introduction**

*Labichea* Gaudich. ex DC. currently comprises 14 species, of which eight occur in Western Australia, one in the Northern Territory, and five in Queensland (Ross 1985). Two of the Western Australian species are only known from their type locations. The genus was revised by Ross (1985) and subsequently appeared in Volume 12 of the *Flora of Australia* (Ross 1998).

In recent years considerable survey effort has been focused on the Banded Iron Formation and greenstone ranges of the Yilgarn Craton (Gibson *et al.* 2007). This has resulted in the recognition and description of 21 taxa restricted to, or with their distributions centred on, these ranges (Wege *et al.* 2007). A new species of *Labichea* was found in the most recent of these surveys in the northern Forrestania Greenstone Belt near Mt Holland along with two other apparently undescribed taxa (Thompson & Allen, in review). The *Labichea* collections from this area are unifoliolate and have clearly differentiated wing, standard and keel petals, unlike the previously described species.

### **Taxonomy**

***Labichea rossii*** N.Gibson, *sp. nov.*

Species nova *L. punctata* Benth. affinis, sed floribus brevioribus et petalis dissimilis et ovario sericeis absentibus differt.

*Typus*: vicinity of Mt Holland, Western Australia [precise locality withheld for conservation reasons], 30 September 2010, N. Gibson 4686 & E.M. Sandiford (*holo*: PERTH 08259712; *iso*: BRI, CANB, MEL).

*Labichea* sp. Mt. Holland (W.A. Thompson & J. Allen 949), Western Australian Herbarium, in *Florabase*, <http://florabase.dec.wa.gov.au> [accessed August 2011].

*Subshrub* to 40 cm high, stems sparingly branched, semi-erect, clothed with appressed uncinata hairs and with occasional longer spreading hairs. *Leaves* unifoliate, lamina narrowly elliptic, 25–35(–45) mm long, 5–7 mm wide, pungent apically, reticulate, with scattered tubercular-based uncinata hairs above, and with scattered appressed uncinata hairs below especially on midrib and leaf margins; petiole to 1 mm long, finely sulcate adaxially. *Stipules* narrowly triangular or subulate, 1.5–2.5 × 0.6–1 mm, glabrous, caducous. *Inflorescence* a 3–5-flowered raceme, much shorter than the subtending leaf; bracts ovate, (2.5–)3–4.5 × 2–2.5 mm, caducous. *Pedicels* 2–3 mm long, densely clothed with uncinata hairs. *Sepals* 5, becoming reflexed, the three outer ones 4–5 × 1.5–2 mm, acute apically, slightly cucullata, sparingly to densely clothed with uncinata hairs, the two inner sepals slightly shorter, almost glabrous with obtuse apex. *Petals* 4, yellow, dissimilar, wing petals 4–5 × 3–4 mm, standard 2.5–3 × 1.8–2 mm, keel 2.5–2.8 × 0.7–1 mm. *Stamens* 2, ± equal in length; filaments 0.3–0.5 mm long; anthers 2.8–3.5 mm long. *Ovary* 1–1.8 mm long, with a moderate to dense cover of uncinata hairs. *Style* 1.5–2.5 mm long. *Pods* not seen.

*Other specimens examined.* WESTERN AUSTRALIA: [precise locality withheld for conservation reasons] Forrestania Greenstone Belt (Mt Holland area), 4 Oct. 2009, *W.A. Thompson & J. Allen 949* (PERTH).

*Distribution.* Currently only known from one small ironstone ridge, less than one hectare in area, near Mt Holland (Figure 1).

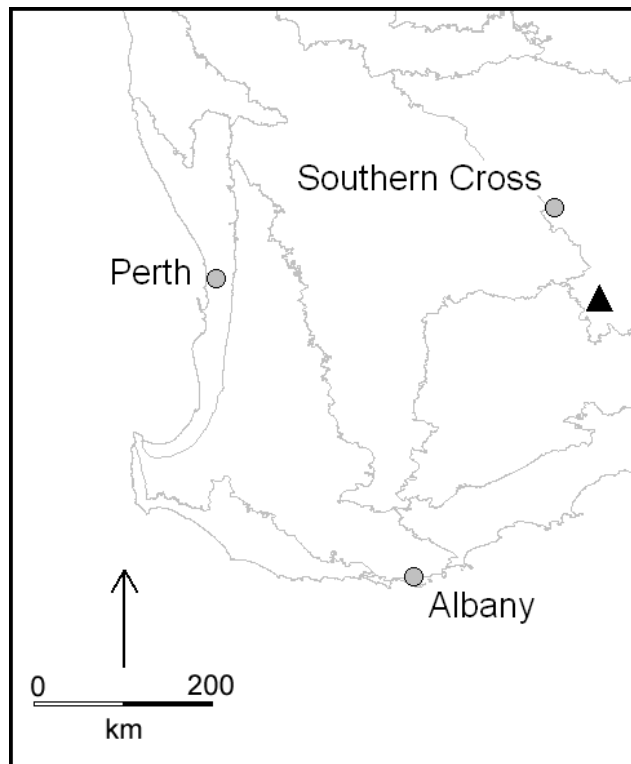


Figure 1. Distribution of *Labichea rossii* (▲) in south-west Western Australia. IBRA Bioregion boundaries (Department of the Environment, Water, Heritage and the Arts 2008) are shown in grey.

*Habitat.* The type location is on a small ironstone ridge which is dominated by an *Allocasuarina* - Proteaceae - Myrtaceae shrubland with occasional emergent eucalypts. *Labichea rossii* grows out of cracks in the massive outcropping banded ironstone, often in the shade of larger shrubs (Figure 2). The characteristic associated species include *Eucalyptus horistes*, *Allocasuarina acutivalvis* subsp. *acutivalvis*, *A. campestris*, *Banksia purdieana*, *Calothamnus quadrifidus* subsp. *seminudus*, *Hakea subsulcata*, *Melaleuca cordata*, and *Hibbertia exasperata*.

*Phenology.* Flowers in late September and early October.

*Conservation status.* *Labichea rossii* was recently listed as Priority One under the Department of Environment and Conservation (DEC) Conservation Codes for the Western Australian Flora. It is only known from the type location where it is locally common. The population is estimated to comprise approximately 100 plants. Despite extensive fieldwork being undertaken in the area over a two week period, no further populations were located. The two closest outcrops of Banded Iron Formation occur on Mt Holland and North Ironcap. No *Labichea* was found on Mt Holland while *Labichea stellata* J.H.Ross was found in similar habitats on North Ironcap. Both of these outcrops are less than 5 km from the *L. rossii* site.



Figure 2. *Labichea rossii* growing out of cracks in massive ironstone on a small Banded Iron Formation ridge near Mount Holland. The dying back of some of the branches is probably due to the below average winter rainfall in 2010.

*Etymology.* Named in honour of Jim Ross, the recently retired head of the National Herbarium of Victoria (MEL), who has made a significant contribution to our understanding of the Fabaceae in Western Australia and who offered his unfailing assistance to Western Australian botanists during his stewardship at MEL.

*Affinities and notes.* *Labichea rossii* belongs to the small group of four taxa (*L. punctata* Benth., *L. rupestris* Benth., *L. digitata* Benth., and *L. stellata*) that possess equal anthers. It shows some affinities to the other unifoliolate taxon in this group *L. punctata*, which Ross (1985) considered to occupy an isolated position in the genus. However, *L. rossii* is easily separated from *L. punctata* by its smaller inflorescence and flowers, the lack of a silky indumentum on its ovary and its clearly differentiated wing, standard and keel petals (Figure 3). The unequal petals are more reminiscent of subfamily Faboideae than subfamily Caesalpinioideae and were consistent in all material studied. Of the 14 other species only the 5-foliolate *L. stellata* is reported as having unequal petals (Ross 1985). Some collections in PERTH of *L. stellata* (e.g. *P.S. Short* 1700a, 1700b; *N. Gibson & K. Brown* 3737) exhibit clearly differentiated petals similar to those of *L. rossii* while other collections have largely undifferentiated petals (e.g. *R.D. Royce s.n.* 8 Oct. 1965). All collections of *L. stellata* from the Mt Holland area have markedly dissimilar petals but this form is not restricted to this area. *Labichea rossii* is clearly differentiated from *L. stellata* by its unifoliolate leaves, shorter status (to 40 cm), lack of spreading hairs on young branchlets, and by its racemes being shorter than the subtending leaf.

*Labichea rossii*, *L. deserticola* J.H.Ross and *L. obrullata* J.H.Ross have the most restricted distributions reported for the genus with *L. deserticola* (currently listed as Priority One, Smith 2010) only known from the type collection of Helms collected in 1891 from the Great Victoria Desert, and *L. obrullata* (also listed as Priority One, Smith 2010) only known from two collections on Gabyon Station near Yalgoo made in 1962 and 1963 (Ross 1985, 1998). All three taxa urgently need further survey work to accurately determine their conservation status.

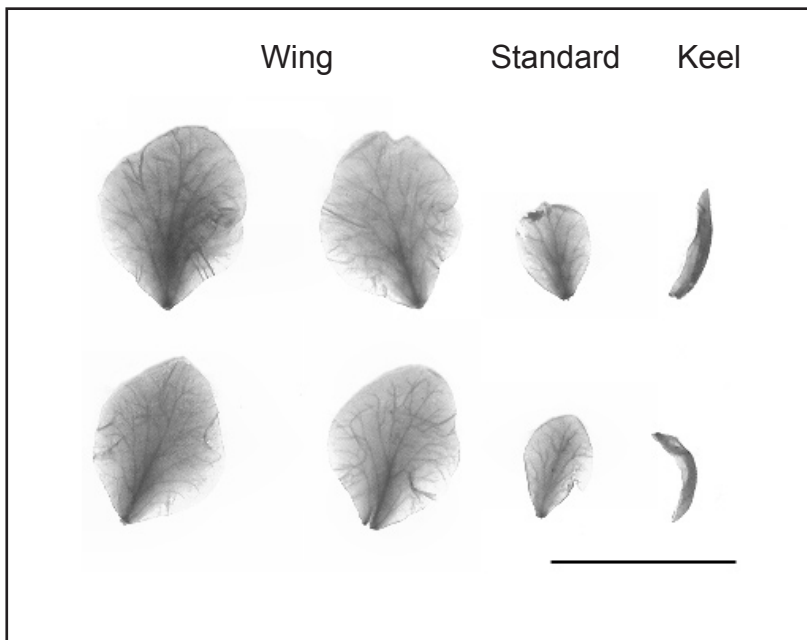


Figure 3. Dissected flowers of *Labichea rossii* showing clearly differentiated wing, standard and keel petals which are unusual in this subfamily (both from *N. Gibson* 4686 & *E.M. Sandiford*). Scale bar 5 mm.

## Acknowledgments

I would like to acknowledge Wendy Thompson and Jessica Allen for bringing this species to my attention and Jim Ross for his comments on their collection. I also thank Paul Wilson who kindly corrected the Latin diagnosis and Kelly Shepherd for her skill in image processing.

## References

- Department of the Environment, Water, Heritage and the Arts (2008). *Interim Biogeographic Regionalisation for Australia (IBRA), Version 6.1*. <http://www.environment.gov.au/parks/nrs/science/bioregion-framework/ibra/index.html> [accessed 8 May 2008]
- Gibson, N., Coates, D.J., Thiele, K.R. (2007). Taxonomic research and the conservation status of flora in the Yilgarn banded iron formation ranges. *Nuytsia* 17: 1–12.
- Ross, J.H. (1985). A revision of the genus *Labichea* Gaudich. ex DC. (Caesalpinaceae). *Muelleria* 6: 23–49.
- Ross, J.H. (1998). *Labichea*. In: *Flora of Australia*. Vol. 12, pp. 146–157. (CSIRO Publishing: Collingwood. Vic.)
- Smith, M.G. (2010). *Declared Rare and Priority Flora List for Western Australia*. (Department of Environment and Conservation: Kensington, Kensington, WA.)
- Thompson, W.A. & Allen, J. (in review) *Flora and vegetation of greenstone formations of the Yilgarn Craton: the northern Forrestania Greenstone Belt [Mt. Holland area]*.
- Wege, J.A., Shepherd, K.A. & Butcher, R. (2007). Preface. *Nuytsia* 17.