

Hemigenia yalgensis, a new species from the Mid-west region of Western Australia (Lamiaceae: Westringieae)

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Abstract

Hemigenia yalgensis G.R.Guerin is described from the Mid-west region of Western Australia. The species is morphologically similar to *H. macphersonii* Luehm. and under the current classification of *Hemigenia*, is placed in section *Homalochilus*. *Hemigenia yalgensis* is not currently considered to be threatened. Reference information and typification are also provided for *H. macphersonii* along with illustration and an occurrence map for the two species.

Keywords: *Hemigenia*, Lamiaceae, Labiatae, Mid-west, Western Australia.

Introduction

This paper describes a new species of *Hemigenia* R.Br. from the Mid-west region of Western Australia, *H. yalgensis*. Under the current classification, the species is placed in sect. *Homalochilus* Benth., based on whorled leaves and a strongly zygomorphic calyx with reduced lobes (Guerin 2008). A key to species in this section, including undescribed species (as phrase names), was presented in Guerin (2013) and a description and illustration of corolla and stamen morphology was given in Guerin (2005). *Hemigenia yalgensis* has been recognised as a separate entity from the morphologically similar species *H. macphersonii* Luehm. (Luehmann 1898) since 1998, but was formerly undescribed. The main purpose of formally describing the species is to provide more detailed comparative information for identification than is currently available.

Herbarium voucher specimens were examined from the herbaria: AD, CANB, MEL, NSW and PERTH. Dried material was measured by hand or under light microscope. Reference information and material was compiled and compared for *Hemigenia macphersonii*, morphologically the most similar species to *H. yalgensis*.

Taxonomy

1. *Hemigenia yalgensis* G.R.Guerin, sp. nov.

Holotypus: 2.5 miles north of Fields Find on Yalgoo Road, W.A., *B.H.Smith 429*, 12 Sep. 1984 (PERTH 03672891). **Isotypi:** AD 98827078, CBG 8905217 at CANB, MEL 1527978.

Hemigenia macphersonii auct. non Luehm.: Beard, Descr. Cat. W. Austral. Pl. 93 (s.dat. [1965]), partly; J.W.Green, Cens. Vasc. Pl. W. Austral. 91 (1981), partly; B.J.Grieve,

W. Austral. Wildfl., ed. 2, 3B: 447 (1981), partly; J.W. Green, Cens. Vasc. Pl. W. Austral. ed. 2, 146 (1985), partly. *Hemigenia* sp. Yuna (*A.C.Burns 95*) Western Australian Herbarium in FloraBase <http://florabase.dec.wa.gov.au> [accessed: 5 August 2015]; G.Paczkowska & A.R.Chapman, W. Austral. Fl. Descr. Cat. 273 (2000).

Open, spindly *shrubs* 0.4–3 m high; *branches* glabrous except for short pubescence restricted to the leaf bases, somewhat angular to rounded in cross-section. *Leaves* 24–68 mm long, 0.5–0.8 (–2 when unfolded) mm wide, 3-whorled, sessile, erect to patent, straight or recurved, most prominently towards the apex, glabrous; lamina conduplicate but sometimes opening a little, narrowly linear; base straight; apex tapering to an acute point. *Inflorescence* a raceme-like thyrse with single flowers subtended by leaf-like bracts. *Pedicels* 2–3 mm long, pubescent, sparsely glandular or glabrous, usually with hairs becoming denser and longer distally; *bracteole pairs* 2 mm long (shorter than the calyx tube), deciduous, inserted at the mid-point of the pedicel, erect, linear and conduplicate (or partly opening), apex acute. *Calyx* (5–) 6.5–9 mm long, usually densely covered with multicellular hairs to 2.5 mm long concentrated towards the base, ± short stalked glands but sometimes glabrous, calyx lobes sparsely ciliate, glandular or glabrous, the inner surface sparsely glandular-pubescent, somewhat lengthening and becoming papery (but persistent) at fruiting stage; *tube* 3–3.5 mm long, obtriangular to funnel-shaped, with ribs which become more distinct in fruit; adaxial and abaxial lips deeply divided; *abaxial lip* 2–3.5 mm long, 2–2.8 mm wide, elliptic to sub-orbicular, with 2 narrowly triangular, acute lobes c. 0.8 mm long, 0.5–0.9 times the length of the adaxial lip; *adaxial lip* 3.5–6 mm long, c. 3.5 mm wide, widely ovate, and with the 2 lateral lobes distinct from, but

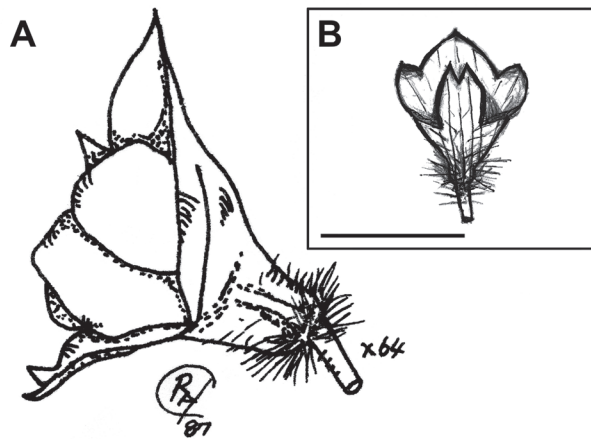


Fig. 1. Sketches of *Hemigenia yalgensis*: **A** Posture of calyx and unopened corolla showing distinctive tuft of long multicellular hairs (scanned from sketch by A.L. Payne stored as part of A.L. Payne 412, PERTH 03672816). **B** Inset: Pressed post-flowering calyx seen from abaxial side, showing shape and relative length of the lip based on A.C. Burns 38 (PERTH 03722449). — Scale bar: **B** 8 mm.

much smaller than, the median lobe (rarely the lateral lobes barely distinguished), the lobe apices apiculate or obtuse to rounded. *Corolla* 10–13 mm long, with tube 6–7 mm long, variable in colour, recorded as green and yellow, white tinged pink, or white with purple veins or brown/pink spots on the lower lip and throat or mauve to purple, the exterior surface pubescent, the interior surface densely bearded between the filaments; *abaxial median lobe* 4–4.8 mm long, 5.2–6 mm wide, widely elliptic, sinus 1 mm long; *lateral lobes* 3.1–4 mm long, 2.5–2.8 mm wide, oblong-ovate, apex rounded; *adaxial median lobe pair* 2.5–5 mm long, 3–5.6 mm wide, obovate, sinus 1 mm long, apex rounded. *Androecium* with the *abaxial stamens* inserted 4–5 mm from the base of the corolla, filaments 2.5–4 mm long, anthers 2 mm long, upper (adaxial) theca 0.6 mm long, lower (abaxial) theca smaller; *adaxial stamens* inserted 3–4 mm from the base of the corolla, filaments 1.5–2.5 mm long, anthers 2 mm long, fertile (adaxial) theca 0.7 mm long, the lower (abaxial) end sterile and shortly bearded. *Style* c. 7–8 mm long. *Mericarps* 2 mm long, obconic to obovoid but somewhat angular, flattened apex shallowly reticulate, distal portion glandular-pubescent, attachment scar slightly more than half the length of the mericarp. **Fig. 1, 3B.**

Diagnostic features. *Hemigenia yalgensis* is distinguished by long, narrowly linear leaves, corolla tube not (or barely) exceeding the calyx lobes and the calyx, which is deeply 2-lipped but 5-lobed. The abaxial lip of the calyx is usually half or more the length of the adaxial lip.

Phenology. Flowering is recorded between August and October.

Distribution and habitat. Occurs in the Mid-west region of Western Australia in the Geraldton Sandplains (GS),

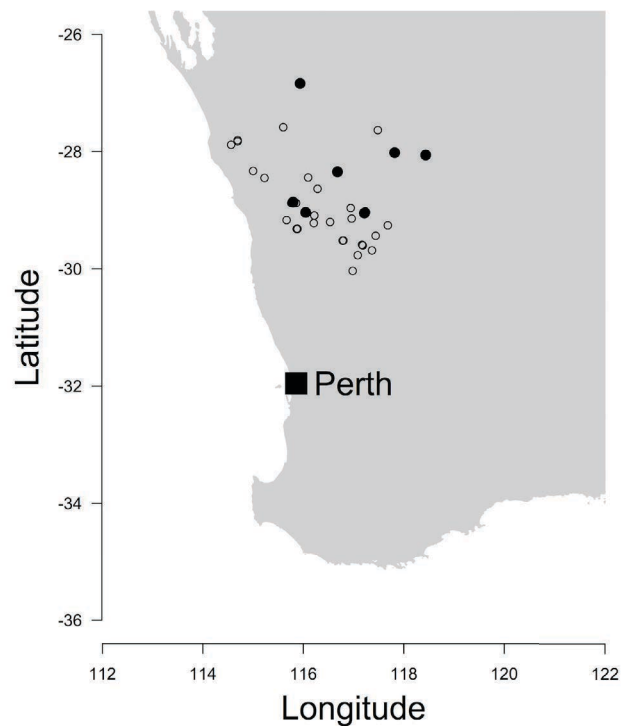


Fig. 2. Distribution of *Hemigenia yalgensis* (open circles) and *H. macphersonii* (closed circles) in Western Australia based on herbarium collections held at the Western Australian Herbarium (WAHERB records).

Yalgoo (YAL), Avon Wheatbelt (AW) and Murchison (MUR) IBRA bioregions. Recorded on a range of substrates including banded iron hills, granite, red loam and stony ground in low open woodland and shrubland with *Callitris*, *Eucalyptus*, *Eremophila*, *Acacia*, *Melaleuca*, *Dodonaea* and *Allocasuarina* (Fig. 2).

Conservation status. *Hemigenia yalgensis* is relatively widespread and well collected. It is not currently considered threatened.

Etymology. Named for the Yalgoo IBRA bioregion (and locality), around which the distribution of *H. yalgensis* is centred.

Affinities. *Hemigenia yalgensis* shares a similar geographic distribution as well as many characters with *H. macphersonii* Luehm. *Hemigenia yalgensis* has a shorter corolla, 10–13 mm long, with a tube which is not (or is barely) exerted from the calyx lobes (vs *H. macphersonii* corolla c. 20–25 mm long with tube significantly exerted from calyx lobes). The flowering calyx of *H. yalgensis* has an abaxial lip at least half the length of the adaxial lip, whereas *H. macphersonii* usually has an abaxial lip less than half the length of the adaxial lip. Post-flowering specimens can be difficult to identify, since the calyx abaxial:adaxial lip length ratio of both species can be near 0.5 and because the adaxial lip increases in length in fruiting stage (Fig. 3).

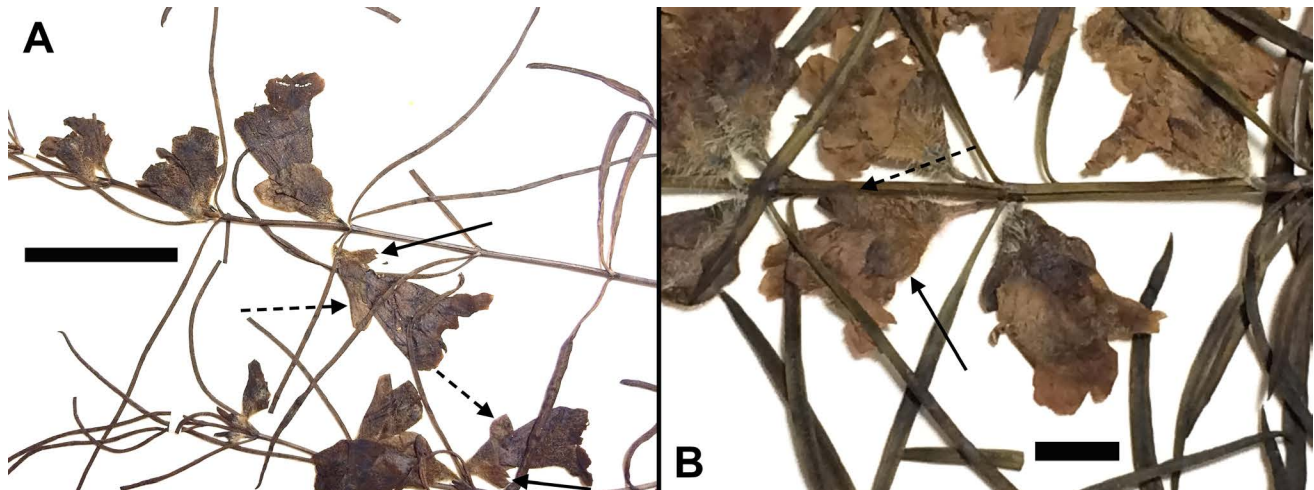


Fig. 3. Images of holotype specimens showing differences in floral morphology: **A** *H. macphersonii*, showing larger corolla with tube long-exserted and abaxial calyx lip (solid arrows) less than half the length of the adaxial lip (dashed arrows) (MEL 646408); **B** *H. yalgensis*, showing shorter corolla with tube not significantly exserted beyond calyx and abaxial calyx lip (solid arrow) more than half the length of the adaxial lip (dashed arrow) (PERTH 03672891). — Scale bars: **A** 25 mm; **B** 5 mm.

Selected other specimens examined:

WESTERN AUSTRALIA. c. 150 km east of Geraldton on the Yalgoo Road, *A.M.Ashby* 2573, 1 Sep. 1968 (AD 97109348); Murchison River Bridge, No. 1 Highway. The west road first turn left going north just over the bridge, *A.C.Burns* 38, 4 Sep. 1984 (PERTH 03722449); East Yuna Reserve, NE of Geraldton, *A.C.Burns* 95, 4 Oct. 1967 (PERTH 03672751); Mt Campbell, *R.Cranfield & P.Spencer* 7856, 25 Sep. 1990 (PERTH 01180428, CBG 9103634 at CANB, MEL 1603505); Mt Campbell repeater station on the Carnamah-Morawa Road, *L.A.Craven* 7009, 1 Oct. 1981 (MEL 302563, AD 98925185, PERTH 03672905, CANB 379607); Lakeside Stn 1527, *A.L.Payne* 412, 13 Aug. 1987 (PERTH 03672816); Wanarra Station, *A.L.Payne* 3864, 28 Aug. 1993 (PERTH 04446356); 7.5 km N of Murchison Shire Office, *P.G.Wilson* 1175 & *R.Rowe*, 20 Sep. 1991 (PERTH 02116413, NSW 249958, AD 9220157).

2. *Hemigenia macphersonii* Luehm.

Victorian Naturalist 15: 20 (1898), as '*macphersonii*'; W.E. Blackall & B.J.Grieve, W. Austral. Wildfl. 3: 589 (1965); Beard, Descr. Cat. W. Austral. Pl.: 93 (s.dat. [1965]), partly; W.E.Blackall & B.J.Grieve, W. Austral. Wildfl., ed. 2, 3B: 447 (1981), partly; Paczk. & A.R.Chapman, West. Austral. Fl.: Descr. Cat. 272 (2000). — **Holotype:** Near Mount Magnet, Western Australia, *W.S.Macpherson s.n.*, Sep. 1897 (MEL 646408!). **Isotypes:** NSW 217075, NSW 498245.

Hemigenia macphersonii Diels in Diels & Pritzel, Bot. Jahrb. Syst. 35(2): 528 & 527, Fig. 59M–R (Dec. 1904), as '*macphersonii*', nom. illeg. (homonym). Bot Jahrb. Syst. 35(4): 652 (Apr. 1905), ad not. — **Type citation:** "Hab. in distr. Austin pr. Mount Margaret (leg. Macpherson)". **Holotype:** B, presumably destroyed.

Distribution and habitat. Occurs in the Mid-west region of Western Australia in the Avon Wheatbelt (AW), Yalgoo (YAL) and Murchison (MUR) IBRA bioregions. Recorded on various substrates including red/brown loam, clay, granite, sandstone and gravel, sometimes in association with banded ironstone formation (Meissner

& Caruso 2008), often along water-courses, in *Acacia* scrub and tall shrubland (Fig. 2).

Conservation status. *Hemigenia macphersonii* is poorly collected but not currently considered threatened, despite being recognised as distinct from *H. yalgensis* since 1998.

Note. Diels described *H. macphersonii* in 1904 from a specimen cited as coming from "Mount Margaret". However, it seems that this is a mis-reading of "Mt Magnet", as all other specimens at MEL collected by W.S. Macpherson were collected from Mt Magnet (P. Milne, pers. comm., Oct. 2015). It is possible that Diels had a duplicate of Luehmann's type specimen available when describing his new species. The type specimen in Berlin was presumably destroyed during World War II, but from the description and illustration in Diels' publication, it is unambiguously the same as Luehmann's species. In addition, Diels noted in the index of his work, which was published several months after the description, that *H. macphersonii* had been described previously and he accepted that his new taxon was a synonym of Luehmann's species.

Other specimens examined:

WESTERN AUSTRALIA. 10 km N of Mount Magnet, *K.Ashby s.n.*, 20 Sep. 1996 (PERTH 04663578); 5.9 km N of Murchison Roadhouse, *R.J.Chinnock & G.S.Richmond* *RJC* 8536, 23 Oct. 1993 (AD 99350007, PERTH 05481155); Prope Yalgoo, *C.A.Gardner s.n.*, Aug. 1960 (PERTH 03672778).

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