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Hemigenia glaucissima (Lamiaceae), a rare new species from south-west Western Australia

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Abstract

Hemigenia glaucissima, a rare species from south-western Western Australia, is here described with associated photographic images and distribution map. The new species is restricted to mallee eucalypt woodland in the south-eastern wheatbelt region of the state. Currently, it is only known from two nearby populations that were first collected during botanical surveys for a mining project near Parker Range.

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Introduction

Hemigenia R.Br. (1810: 502) is an Australian genus of shrubby mints (Lamiaceae) (Conn 1986, Guerin 2008a), containing 54 species (CHAH 2010), 51 of which occur in Western Australia (Western Australian Herbarium 1998–). Traditionally within the tribe Westringieae, species belonging to genus *Hemigenia* are characterised by having non-pungent, opposite or whorled leaves and by zygomorphic flowers with tubular corollas, consisting of two lips - the upper lip with two lobes and the lower lip with three lobes; all of which enclose two pairs of fertile stamens - each anther with an elongate connective bearing one or two fertile thecae (Guerin 2008a).

The genus is particularly diverse within the Avon Wheatbelt and Coolgardie bioregions in Western Australia, accounting for 35 of the 54 species of *Hemigenia* (Western Australian Herbarium 1998–; Guerin 2008b; Wedge & Guerin 2020). Following some recent botanical surveys (in 2020) in the vicinity the Parker Range, which occurs on the border of these bioregions some 50 kilometres south-east of Southern Cross, a visually distinct mint with bluish green to greyish purple foliage was discovered. Examination of fertile shrubs revealed a unique suite of floral and vegetative characters warranting taxonomic recognition. The novel species is formally described herein as *Hemigenia glaucissima* A.J.Perkins.

Methods

This study was based on the examination of fresh material of the undescribed species and herbarium specimens of morphologically similar taxa, held at PERTH (Western Australian Herbarium). Evidence for the recognition of the new species is centred on discrete morphological characters identified from comparisons made with *H. humilis* Benth. and *H. diadela* G.R.Guerin & Wege.

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Vegetative and floral characters were measured from fresh and herbarium material using a dissecting microscope and the descriptive morphological terminology used in this study follows Conn (1986) and Guerin (2008b). A distribution map for the new species was produced from voucher specimen data using QGIS Version 3.8. Habitat and phenology data were collected from field observations. Images of type materials held interstate and overseas were accessed via Global Plants (https://plants.jstor.org/).

Taxonomy

Hemigenia glaucissima A.J.Perkins, sp. nov.

Type: AUSTRALIA. Western Australia: Parker Range area [precise locality withheld for conservation reasons], 2 December 2020, *A.J. Perkins AJP-WA173 & S. Findlay* (holotype: PERTH 09591184, isotypes: AD, BRI, CANB, HO, MEL, NSW).

Figure 1

Diagnosis. *Hemigenia glaucissima* can be distinguished from all other *Hemigenia* species by the combination of leaves, young stems, pedicels and calyces glaucous to glaucescent; leaves mostly ovate to obovate held erect in whorls of 3; stems, leaves and calyces glabrous except for small tufts of simple hairs in the leaf axils; calyces with 5 acute lobes of approximately equal length; and cerebriform mericarps with glandular cells at their apices.

Description: Caespitose *shrubs* 0.2–0.9 m high, to 0.8 m diam.; branchlets glabrous or with minute white hairs localised just above the leaf axils, glaucous to glaucescent, triquetrous and grooved along the faces in young stems, becoming cylindrical with age. *Leaves* in whorls of 3 (rarely opposite), sessile to subsessile, erect and slightly incurved or recurved, glabrous or with a few minute white hairs near the axil, glaucous, greyish green to bluish violet when mature; petioles up to 0.4 mm long; lamina mostly ovate to obovate, occasionally lanceolate to oblanceolate, adaxially flat to strongly concave, 7.5–11.5 × 3.5–7.0 mm; bases tapering; apex mostly obtuse to acute or sometimes obtusely notched, occasionally sunken. *Flowers* solitary in upper leaf axils; pedicels 0.5–1.2 mm long, glabrous, persistent after fruits have fallen; *bracteoles* inserted immediately below the calyx, erect to slightly spreading, 1.9–3.2 mm long at anthesis, linear to linear lanceolate, glabrous and glaucescent. *Calyx* slightly zygomorphic, 4.9–6.5 mm long, glabrous, glaucescent; tube campanulate; lobes all ± similar, triangular, 1.9–3.4 mm long. *Corolla* 11.0–14.2 mm long, 9.8–14.0 mm wide, glabrous on outer surface, pale to dark lilac; white in the throat where there are scattered, pale magenta to pale brownish yellow blotches, with glandular hairs sparsely scattered on the adaxial lobe, and short, white hairs scattered on the inside of the lobes towards the base of the tube; abaxial median lobe flabellate, bilobed, 4.0–5.5 mm long, emarginate, sinus c. 1 mm long; lateral lobes elliptic to narrowly obovate, emarginate, 5.0–6.5 mm long; adaxial median lobes 3.5–5.0 mm long (shorter than the abaxial lobe), sinus c. 1 mm long. *Stamens* included in the throat, the abaxial pair c. 4 mm long, the adaxial pair subequal to length of adaxial pair; filaments with white hairs towards the base; anthers dimidiate, c. 2.5 mm long, the abaxial pair with two unequal (fertile) thecae, the adaxial pair with a solitary fertile theca and the lower end bearded (sterile). *Style* 11–12 mm long, bilobed, glabrous. *Fruiting calyx* papery, not accrescent. *Mericarps* 4, subglobular, cerebriform, c. 2.5 mm long, rounded on the outer face, apex with glandular cells, angled between the inner faces, dark brown. (Figure 1)

Other specimens examined. Western Australia: Parker Range area [precise locality withheld for conservation reasons], 2 December 2020, *A.J. Perkins AJP-WA174 & S. Findlay* (PERTH 09591222).

Phenology. Flowers and fruits mainly from October to May of the following year. Due to irregular regional rainfall, plants tend to flower sporadically during this period in response to significant rainfall events.

Distribution & habitat. *Hemigenia glaucissima* is currently known from two sites geographically associated with the Parker Range, south-east of Southern Cross, Western Australia (Figure 2). Plants occur in mallee eucalypt woodland, associated with yellow sands and with surface laterite.

Conservation status. Likely to be localised and rare as it is currently only known only from two sites; neither site is within areas reserved for conservation. *Hemigenia glaucissima* should be listed as a conservation priority taxon in Western Australia.

Etymology. The botanical name is derived from the Latin '*glaucus*' (bluish-green or grey) and the adjectival superlative '*–issimus*' (very), in reference to the conspicuously glaucous surfaces of the leaves, branchlets, bracteoles and calyces, which give this species its distinctive appearance (Figure 1).

Vernacular name. Parker Range Hemigenia.

Notes. The glabrous and glaucous surfaces (along with the bluish green to greyish purple colouration) of the leaves, young stems, pedicels, bracteoles, and calyces of *Hemigenia glaucissima*, makes this species distinctive within the genus. This species shares some morphological similarities with the rare, northern Wheatbelt species *H. diadela*. Both species have greyish green leaves that are arranged in whorls of 3, inconspicuous petioles and small tufts of hairs in the leaf axils, zygomorphic flowers with lilac, 2-lipped corollas and mericarps with glandular hairs at their apex. *Hemigenia diadela* can be differentiated from *H. glaucissima* by having lanceolate leaves with hairs along the basal margins (*versus* leaves mostly

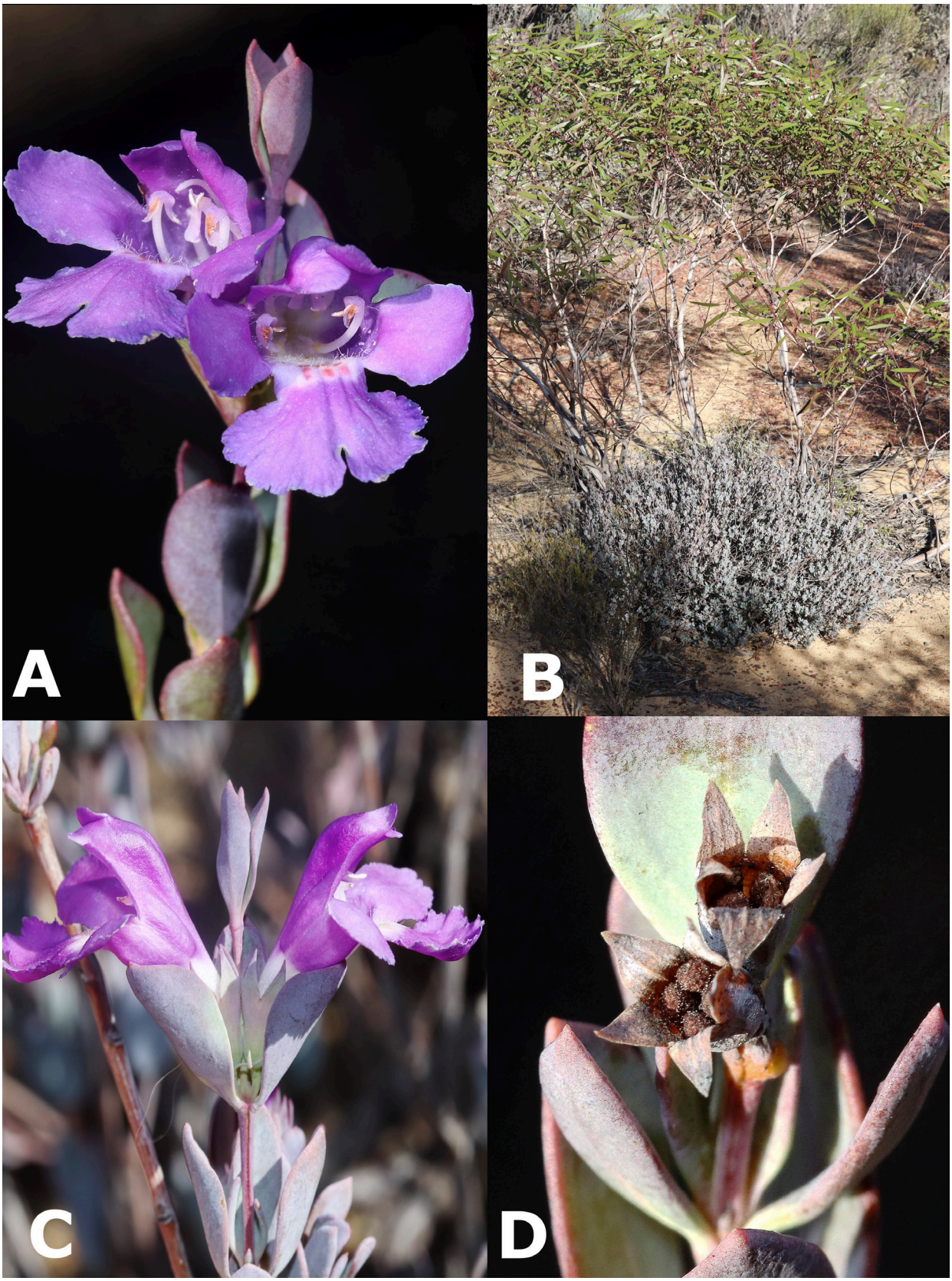

FIGURE 1. Photographs of *Hemigenia glaucissima* (**A–D**). **A**: Ventral view of flowers showing the corollas, stamens, styles; **B**: A mature plant showing distinctive greyish foliage and habit *in situ*; **C**: Lateral view of flowers showing the glaucous and glabrous pedicels, bracteoles and calyces, as well as the glabrous outer surface of the corollas; **D**: Mature fruits, each holding four mericarps. Note the mericarps with an indumentum of glandular hairs at their apices. Photographs by Andrew Perkins taken of plants *in situ* during 2020.

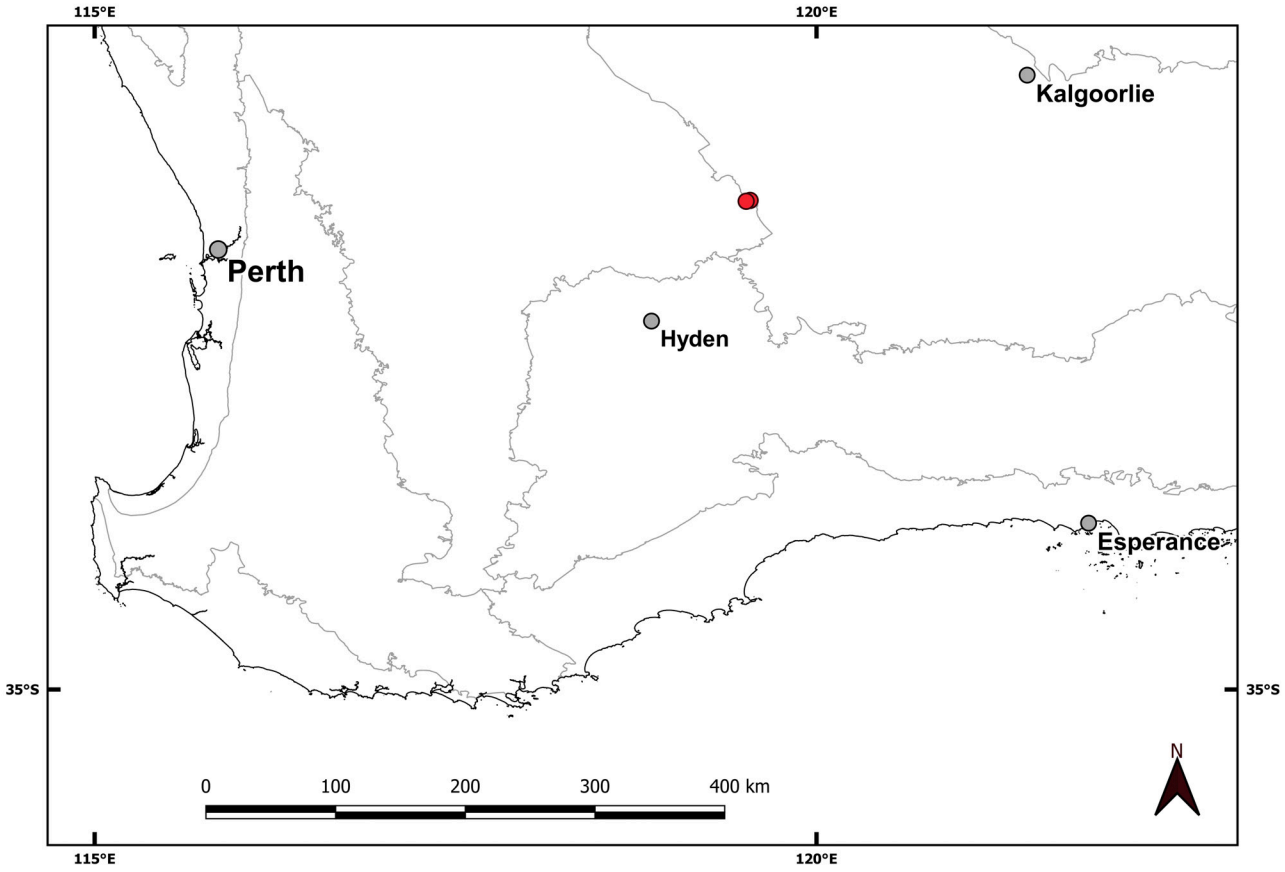

FIGURE 2. Distribution of *Hemigenia glaucissima* in south-west Western Australia (shown here as red circles) based on specimens held at PERTH.

ovate to obovate and glabrous in *H. glaucissima*); stems and pedicels with a dense indumentum of short hairs combined with longer, more sparsely distributed hairs (*vs* glabrous stems and pedicels); sparse indumentum of multicellular hairs on the bracteoles and calyces (*vs* glabrous bracteoles and calyces); and strongly zygomorphic calyces (*vs* nearly radially symmetric calyces, with 5 acute calyx lobes of similar length).

There are also some morphological similarities between *H. glaucissima* and *H. humilis* s.l. in terms of the leaf shape, size and orientation along stems. Additionally, both species have shortly pedicellate flowers and calyces with 5 acute lobes of similar length. *Hemigenia humilis* is a variable species consisting of several informal, morphological variants. Most variants of *H. humilis* (including the type variant [K000975382 image!]) are variously hairy on the stems, leaves, calyces and can be easily distinguished from *H. glaucissima*. However, an 'inland variant' of *H. humilis* (distributed around Narrogin [PERTH 03671402, PERTH 05562821], Arthur River [PERTH 06238475] and Nyabing [PERTH 03671399]) is the most visually akin to *H. glaucissima* in that it has glabrous and glaucescent stems, leaves and calyces. All variants of *H. humilis* can readily be distinguished from *H. glaucissima* as they all have opposite and decussately arranged leaves (*vs* leaves in whorls of 3 in *H. glaucissima*), floral bracteoles distinctly subterminal (1/3 to 2/3) along pedicels (*vs* terminal at the base of the calyx), hairy outer corolla surfaces (*vs* glabrous outer corolla surfaces) and mericarps that are elongate and glabrous (*vs* cerebriform with a dense covering of trichomes at the apex).

Disclosures

No conflict of interest.

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References

Brown, R. (1810). *Prodromus florae Novae Hollandiae et insulae Van-Diemen, exhibens characteres plantarum quas annis 1802-1805*, London: Richard Taylor & Son. pp. 502

CHAH (2010). *Australian Plant Census*, Council of Heads of Australasian Herbaria. https://biodiversity.org.au/nsl/services/APC (accessed 1 April 2023).

Conn, B.J. (1986). New species of *Hemigenia* and *Microcorys* (Labiatae). *Muelleria* 8(4): 259–264.

Guerin, G.R. (2008a). Evidence for polyphyly in *Hemigenia* and *Microcorys* (Lamiaceae: Westringieae). *Australian Systematic Botany* 21: 313–325.

Guerin, G.R. (2008b). A taxonomic revision of *Hemigenia* section *Malleantha sect. nov.* (Lamiaceae: Westringieae). *Australian Systematic Botany* 21: 326–374.

Wege, J.A. & Guerin, G.R. (2020). Living on the edge: *Hemigenia diadela* (Lamiaceae), a new species from remnant vegetation in Western Australia's northern Avon Wheatbelt. *Nuytsia* 31: 69–73.

Western Australian Herbarium (1998–). *FloraBase—the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions. https://florabase.dpaw.wa.gov.au/ [accessed 4 May 2023].