

Two new species of *Westringia* sect. *Cephalowestringia* (Lamiaceae: Westringieae) from the south-west of Western Australia

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Abstract

Davis, R.W. & Jobson, P. Two new species of *Westringia* sect. *Cephalowestringia* (Lamiaceae: Westringieae) from the south-west of Western Australia. *Nuytsia* 23: 271–276. *Westringia fitzgeraldensis* R.W.Davis & P.Jobson and *W. ophioglossa* R.W.Davis & P.Jobson are described here as new. A modification to the existing key for *Westringia* Sm. sect. *Cephalowestringia* Kuntze is provided to account for *W. fitzgeraldensis* and *W. ophioglossa*. *Westringia fitzgeraldensis* occurs in open mallee in the Fitzgerald River National Park and *W. ophioglossa* in mallee woodlands in the northern wheat-belt. A distribution map is provided.

Introduction

Westringia Sm. sect. *Cephalowestringia* Kuntze is endemic to the south-west of Western Australia. It is characterised by bracteate, pseudo-capitate inflorescences (Guerin 2009) in contrast to sect. *Westringia*, where the inflorescences are raceme-like, with distant whorls of single flowers subtended by leaf-like bracts. Prior to Guerin's (2009) review, sect. *Cephalowestringia* consisted of two species, *W. discipulorum* S.Moore and *W. cephalantha* F.Muell. Guerin *q.v.* added three new taxa, describing the new species *W. acifolia* G.R.Guerin and *W. capitonia* G.R.Guerin, and dividing *W. cephalantha* into two varieties, var. *cephalantha* and var. *caterva* G.R.Guerin.

Many species of *Westringia* are morphologically similar and mostly distinguished by quantitative characters (Bentham 1870; Boivin 1949; Conn 1988; Guerin 2009). This is not the case with the two species described here as they both have distinctive bracts and floral lobe shapes which easily separate them from other species. The new species have only recently been discovered: *W. ophioglossa* R.W.Davis & P.Jobson was found in December 2012 by both authors while on a field trip to Wubin, 200 km north-east of Perth, and *W. fitzgeraldensis* R.W.Davis & P.Jobson was collected in 2011 by Department of Environment and Conservation (DEC) botanist Damien Rathbone during a floristic survey of the coastal catchments and ranges of the Fitzgerald River National Park.

Methods

Measurements of vegetative parts were taken from dried specimens and floral parts from material reconstituted in hot water with a little detergent. Where possible, to maintain consistency and comparability, we have followed Guerin's (2009) taxonomic description format. In the use of terminology for indumentum we have described density, length, distribution and orientation of hairs. The distribution maps are based on PERTH specimen data.

Taxonomy

Westringia ophioglossa R.W.Davis & P.Jobson, *sp. nov.*

Type: north-north-east of Wubin, east of Maya, Western Australia [precise locality withheld for conservation reasons], 23 December 2012, R. Davis & P. Jobson RD 12247 (*holo*: PERTH 08407894, *iso*: CANB).

Westringia sp. Maya (R. Davis & P. Jobson RD 12235), Western Australian Herbarium, in *FloraBase*, <http://florabase.dec.wa.gov.au> [accessed 11 March 2013].

Compact, perennial *shrubs* to 1.3 m high; branches erect, terete to sub-quadrangular towards new shoots, with moderately dense, spreading hairs to 0.1 mm long, interspersed with glandular hairs. *Leaves* in crowded whorls of 4, petiolate, the petioles 0.7–0.9 mm long; lamina linear, 6.5–9.5(–10) mm long, 0.9–1.3 mm wide, with margins strongly revolute obscuring abaxial surface including midrib, the adaxial surface with moderately dense, spreading hairs to 0.1 mm long. *Inflorescences* depressed-globose, with moderately tightly clustered bracts, bracteoles and calyces held close together but the outer bracts looser, 8–12-flowered, 5–8 mm long, 10–15 mm wide. *Bracts* rigid, rhombic, with distal half tightly revolute, expanded in middle portion, then tapering towards base, 2.5–3.5 mm long, 0.6–1.2 mm wide; margins not ciliate; abaxial surface with sparse, antrorse hairs 0.1–0.2 mm long concentrated near margins and proximally, underlain by very short, glandular hairs; adaxial surface with sparse, antrorse hairs 0.1–0.2 mm long concentrated near margins and distal portion, underlain by short glandular hairs; apex rounded. *Bracteoles* dissimilar to bracts, erect, longer than calyx tube, lanceolate, 3.4–3.8 mm long, 0.7–1.1 mm wide; margins not ciliate; abaxial surface with spreading to antrorse hairs 0.1–0.2 mm long underlain by moderately dense, short, glandular hairs; adaxial surface with occasional antrorse hairs 0.1–0.2 mm long underlain by moderately dense glandular hairs; apex attenuate, slightly recurved. *Calyx* 3.6–3.8 mm long, with sparse to moderately dense, often retrorse but also occasionally antrorse hairs 0.1–0.2 mm long underlain by a dense covering of glandular hairs, mostly glabrous inside with very scattered, appressed hairs on upper part of lobe; *tube* obconical, 0.9–1.2 mm long, the base rounded; *lobes* imbricate in lower half, slightly incurved, ovate, longer than tube, 2.3–2.5 mm long, 1.2–1.3 mm wide, the margins slightly concave, not ciliate, the apex acuminate. *Corolla* 4.2–4.4 mm long, white, with a purple spot at the centre of each lateral lobe and two purple spots at the base of the abaxial median lobe; exterior surface with sparse, retrorse hairs 0.1–0.2 mm long becoming dense in the middle portion of the tube; interior surface mostly glabrous except for a ring of dense, antrorse hairs 0.2–0.3 mm long at throat; abaxial median lobe obovate in outline, bifurcate, 2.1–2.3 mm long, 3.2–3.4 mm wide, the margin entire except at apex, the apex truncate, oblique, serrated; lateral lobes linear, 2.1–2.3 mm long, 0.9–1.1 mm wide, the margin entire, the apex bifurcate; adaxial median lobes 0.1–0.2 mm long, 0.5–0.7 mm wide, the margins entire, the apices rounded. *Fertile stamens* with filaments inserted 1.8–1.9 mm from base of corolla tube, 1.7–1.9 mm long, with sparse, spreading hairs, their anthers basifixed with the connective expanded to the dorsal

surface, 0.7–0.8 mm long; *staminodes* with filaments inserted 3–3.2 mm from base of corolla tube, 1.1–1.3 mm long, sparsely hairy, with sterile lobes 0.2–0.3 mm long. *Ovary* 1.6–1.8 mm long, 1.1–1.3 mm wide, glabrous; style 4.1–4.3 mm long; stigma lobes 0.05–0.06 mm long. *Mericarps* not seen.

Other specimen examined. WESTERN AUSTRALIA: [same location as the type], 09 Dec. 2012, R. Davis & P. Jobson RD 12235 (PERTH).

Distribution and habitat. *Westringia ophioglossa* is only known from one roadside population east of Maya (Figure 1). It occurs in open mallee woodlands and is associated with *Eucalyptus leptopoda* subsp. *arctata* and *Grevillea paradoxa*.

Conservation status. With only a single roadside population of five plants, *W. ophioglossa* has been recently listed as Priority One under DEC Conservation Codes for Western Australian Flora, as *Westringia* sp. Maya (R. Davis & P. Jobson RD 12235) (Western Australian Herbarium 1998–). A search of surrounding road verges and bushland in the immediate vicinity failed to uncover further populations.

Phenology. *Westringia ophioglossa* flowers from late November to December.

Etymology. The species epithet is derived from the Greek *ophis* (a snake) and *glossa* (tongue) in reference to the lateral lobes of the corolla being deeply divided, resembling a snake's tongue.

Notes. *Westringia ophioglossa* has leaves in whorls of four and can be easily recognised by its tightly revolute leaf margins which obscure the midrib and its deeply divided abaxial median and lateral corolla lobes. The lateral corolla lobes have a purple spot situated in the middle of the lobe. The bracts are also distinctive in being rhombic in shape and tightly revolute in the distal portion.

Westringia fitzgeraldensis R.W.Davis & P.Jobson, *sp. nov.*

Type: [Fitzgerald River National Park], Western Australia [precise locality withheld for conservation reasons], 24 September 2011, D. Rathbone DAR 621 (*holo:* PERTH 08392285; *iso:* CANB).

Westringia sp. Fitzgerald (D. Rathbone DAR 621), Western Australian Herbarium, in *FloraBase*, <http://florabase.dec.wa.gov.au> [accessed 17 December 2012].

Erect, open, perennial *shrubs* to 1.2 m high; branches erect, terete to sub-quadrangular, with moderate to dense, spreading hairs 0.2–0.7 mm long. *Leaves* in crowded whorls of 4, petiolate, the petioles 1–1.9 mm long; lamina linear, 7.5–11.1 mm long, 1.1–1.6 mm wide, with margins strongly revolute, the midrib clearly visible; adaxial surface with moderately dense, spreading to antrorse hairs 0.2–0.7 mm long, these sparser on abaxial surface. *Inflorescences* depressed-globose to ellipsoid, with moderately clustered bracts, bracteoles and calyces held close together but outer bracts looser, 8–12-flowered, 5–7 mm long, (8–)10–15 mm wide. *Bracts* rigid, rhombic, with distal half tightly involute, expanded in middle portion, then tapering towards base, 6.1–6.8 mm long, 1.6–1.8 mm wide, the margins ciliate; abaxial surface with moderately dense, antrorse hairs 0.2–0.4 mm long; adaxial surface with sparse, antrorse hairs 0.2–0.4 mm long on distal half, becoming glabrous on lower half; apex rounded. *Bracteoles* dissimilar to bracts, erect, much longer than the calyx tube, narrowly oblanceolate, 3.9–4.2 mm long, 0.5–0.8 mm wide, the margins densely ciliate; abaxial surface with moderately dense, antrorse hairs 0.2–0.3 mm long, mostly on medial portion; adaxial surface mostly glabrous,

with some sparse, antrorse hairs 0.2–0.3 mm long on distal portion; apex attenuate. *Calyx* 3.9–4.2 mm long, mostly glabrous with some sparse, antrorse to appressed hairs 0.2–0.3 mm long along medial section of the lobes and continuing down the tube; lobe margins ciliate; interior with very sparse, appressed, antrorse hairs, with short, sparse, glandular hairs mostly on lobe portion; *tube* obtriangular, 2–2.2 mm long, slightly rounded at base; *lobes* not or only slightly imbricate at base, ovate, usually slightly shorter than tube, 1.5–2.3 mm long, 0.9–1.1 mm wide at base, the apex apiculate. *Corolla* 6.5–7 mm long, white, lacking spots on lobes; exterior surface with sparse hairs on middle and upper portion of tube; interior surface with sparse, appressed hairs 0.1–0.2 mm long around throat; abaxial median lobe obovate to spatulate in outline, 2.1–2.3 mm long, 2.4–2.6 mm wide, the margins entire to slightly crenulate at apex, the apex flabellate to slightly emarginate; lateral lobes obovate to narrowly obovate, 1.6–1.8 mm long, 1.3–1.5 mm wide, the margins entire, the apex rounded; adaxial median lobes orbicular, 1.8–2.1 mm long, 1.6–1.7 mm wide, entire, the apex rounded. *Fertile stamens* with filaments inserted 1.6–1.7 mm from base of corolla tube, 3.1–3.3 mm long, with spreading hairs on proximal half, their anthers basifixed with the connective expanded to the dorsal surface, 0.9–1.1 mm long; *staminodes* with filaments inserted 1.7–1.9 mm from base of corolla tube, 1.1–1.2 mm long, glabrous, with sterile lobes 0.2–0.3 mm long. *Ovary* 0.6–0.8 mm long, 0.6–0.7 mm wide, glabrous; style 4.3–4.5 mm long; stigma lobes 0.14–0.15 mm long. *Mericarps* not seen.

Distribution and habitat. *Westringia fitzgeraldensis* occurs in a large valley west of Hopetoun in the Fitzgerald River National Park. It inhabits gentle slopes on alluvial, orange-brown loam with quartzite

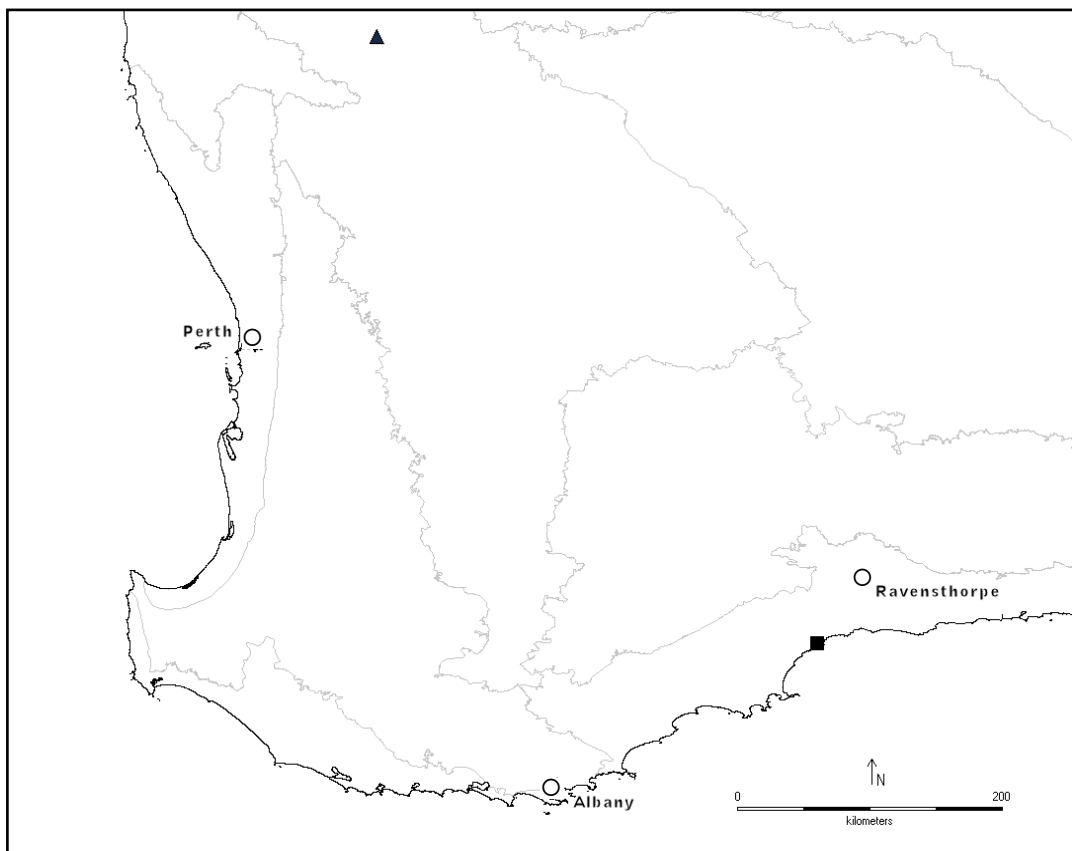


Figure 1. Distribution of *Westringia fitzgeraldensis* (■) and *W. ophioglossa* (▲) in Western Australia.

fragments in open mallee woodlands. Associated species include *Eucalyptus uncinata*, *E. redunca*, *E. conglobata* subsp. *perata*, *Melaleuca pomphostoma*, *M. suberosa* and *Siegfriedia darwinioides* (Figure 1).

Conservation status. The single known population of *W. fitzgeraldensis* is reserved in the Fitzgerald River National Park. It has been recently listed as Priority Two under DEC Conservation Codes for Western Australian Flora, as *Westringia* sp. Fitzgerald (D. Rathbone DAR 621) (Western Australian Herbarium 1998–).

Phenology. The single collection of *W. fitzgeraldensis* was in flower in mid- to late September.

Etymology. This species is currently only known from the Fitzgerald River National Park and is named after the place where it occurs.

Notes. *Westringia fitzgeraldensis* has leaves in whorls of four much like *W. capitonia*; however, it differs in having stems and leaves sparsely to densely hairy (glabrous in *W. capitonia*). The bracts are distinctively rhombic in *W. fitzgeraldensis* and tightly involute in the distal portion, while *W. capitonia* has bracts that are ovate or tending to elliptic to obovate in the distal part of the inflorescence.

Modified key to species of *Westringia* sect. *Cephalowestringia* (after Guerin 2009: 127)

- 1: Leaves per whorl 3
 - 2: Leaf margins fused to each other or held close together abaxially, midrib obscured, leaves linear-terete; bracts longitudinally ridged; adaxial corolla lip 0.5–0.6 mm long **W. acifolia**
 - 2: Leaf margins fused to abaxial leaf surface, midrib prominent, leaves oblong to linear; bracts not ridged (midrib prominent); adaxial corolla lip 0.9–1.7 mm long **W. cephalantha**
- 1: Leaves per whorl 4 or 5
 - 3: Leaves per whorl 4
 - 4: Leaf margins revolute, obscuring midrib **W. ophioglossa**
 - 4: Leaf margins revolute but the midrib not obscured, prominent
 - 5: Leaves and stems glabrous, leaf margins revolute and fused to abaxial leaf surface **W. capitonia**
 - 5: Leaves and stems pubescent, leaf margins revolute but not fused to abaxial leaf surface **W. fitzgeraldensis**
 - 3: Leaves per whorl 5 **W. discipulorum**

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