Nuytsia The journal of the Western Australian Herbarium

23: 479–482 Published online 17 September 2013

Hibbertia sericosepala (Dilleniaceae), a new species from Western Australia

Kevin R. Thiele

Western Australian Herbarium, Department of Parks and Wildlife,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
Email: kevin.thiele@dpaw.wa.gov.au

Abstract

Thiele, K.R. *Hibbertia sericosepala* (Dilleniaceae), a new species from Western Australia. *Nuytsia* 23: 479–482 (2013). *Hibbertia sericosepala* K.R.Thiele is described as new. Morphologically similar to *H. helianthemoides* (Turcz.) F.Muell. and *H. huegelii* (Endl.) F.Muell., *H. sericosepala* is distinctive in its combination of sepal and leaf indumentum, floral bract shape and anther and carpel number. It is endemic to the south-west of Western Australia.

Introduction

Hibbertia Andr. comprises *c.* 120 taxa in Western Australia. The great majority of species occur in the South West Botanical Province, with a few extending into immediately adjacent parts of the Eremaean Botanical Province. One species is restricted to the Pilbara bioregion and eight to the Kimberley region. The most recent complete revision of *Hibbertia* was that of Bentham (1856). Toelken (1995, 1998, 2000, 2010) revised a number of eastern and northern Australian species complexes, while Wheeler (2002a–d, 2004a,b) and more recently Wege and Thiele (2009) and Thiele (2009, 2012) have described many new taxa from Western Australia. Wheeler (2004c) provided a key to all Western Australian taxa known at that time, subsequently updated in Thiele (2009, 2012). An up-to-date key to *Hibbertia* in Western Australia is maintained at *KeyBase* (see http://keybase.rbg.vic.gov.au/).

Judy Wheeler, while curating material at the Western Australian Herbarium, phrase-named a number of putative new taxa including the one described here. First segregated in 2002 and given the name *H.* sp. Gnangara (J.R. Wheeler 2329) (Western Australian Herbarium 1998–), specimens of this taxon had been previously ascribed to *H. helianthemoides* (Turcz.) F.Muell., *H. huegelii* (Endl.) F.Muell. and *H. pachyrrhiza* Steud. Subsequent collecting and review of available material has confirmed that it is distinct; accordingly, it is here described as *H. sericosepala* K.R.Thiele.

Taxonomy

Hibbertia sericosepala K.R.Thiele, *sp. nov.*

Type: Breera Road Reserve on the southern firebreak, Gingin, Western Australia, 20 September 2009, *P. & J. Foss* 372 (*holo*: PERTH 08193053; *iso*: AD, CANB, K).

http://florabase.dpaw.wa.gov.au/nuytsia/
ISSN 2200-2790 (Online)
ISSN 0085-4417 (Print)

Hibbertia sp. Gnangara (J.R. Wheeler 2329), Western Australian Herbarium, in *FloraBase*, http://florabase.dpaw.wa.gov.au [accessed 19 August 2013].

Shrubs 0.2–0.4 m high, often sprawling, resprouting from the rootstock after fire; branchlets pubescent with sparse to dense, crisped, ± appressed, pale grey hairs, sometimes mixed with sparse, longer, spreading, simple hairs. *Leaves* spreading, clustered into distinct fascicles, linear, (12–)20–35 mm long, 0.9–4 mm wide, the margins strongly recurved but usually not completely obscuring the undersurface; adaxial surface smooth (non-tuberculate), glabrescent, pubescent to pilose at first with abundant, loosely appressed to spreading, somewhat crisped, white to pale grey, simple hairs; abaxial surface glabrous to shortly pubescent with hairs similar to those on the adaxial surface but shorter except on the prominent midrib; apex obtuse to subacute. *Flowers* sessile, several together amongst the leaf fascicles; flower-subtending bracts broad, brown, scarious, broadly ovate to orbicular, 4–6 mm long, subacute to obtuse, the lower ones often with reduced leaf blades, sparsely to densely sericeous. *Sepals* 5, ovate to triangular, 7.5–10 mm long, densely long-sericeous or pilose throughout with ± straight or flexuose, whitish hairs spreading at *c.* 45–90° to surface; midribs not prominent; outer sepals acute to acuminate; inner sepals similar in size, apex shape and indumentum to the outer. *Petals* 5, yellow, obovate, 10–18 mm long, emarginate or entire. *Stamens* 25–30, all around the gynoecium, fused by their filaments into 5 distinct bundles; filaments 1.2–3.5 mm long; anthers rectangular, 1.5–2.0 mm long, dehiscing by introrse, longitudinal slits. *Staminodes* absent. *Carpels* 3(5); ovaries compressed-globular, glabrous; styles spreading excentrically from the carpel apex, *c.* 3 mm long. *Ovules* 2 per carpel. *Fruiting carpels* and seeds not seen.

Diagnostic features. *Hibbertia sericosepala* may be distinguished from all other Western Australian taxa by its combination of narrow, linear leaves with recurved margins, sessile flowers subtended by broad, scarious bracts, densely sericeous sepals, 25–30 stamens united into five bundles, and gynoecium 3(5)-carpellate and glabrous.

Specimens examined. WESTERN AUSTRALIA: Keysbrook, 10 Nov. 1999, *R. Archer & M. Wood* MET 20816 (PERTH); Keysbrook, 2 Nov. 1999, *R. Archer* MET 20815 (PERTH); Badgingarra National Park, 8 km W along Cadda Rd, off Brand Hwy, 8 Oct. 1985, *M. Carter* 412 (PERTH); 5.1 km E along Cadda Rd from junction of Munbinea Rd, 20 Sep. 2001, *R. Davis* 10100 (PERTH); Melaleuca Park, 4 July 1978, *J. Dodd* 14 (PERTH); Melaleuca Park, Gnangara, 8 Aug. 1978, *J. Dodd* 17 (PERTH); Wongondarra [Wongonderrah] Rd, Badgingarra, 15 Oct. 1978, *J. Dodd* 26 (PERTH); Wongonderrah Rd, Badgingarra, just W of Nambung River, 15 Oct. 1978, *J. Dodd* 28 (PERTH); Whitfield Brook, 1.6 km W of Brand Hwy, 15 June 1979, *J. Dodd* 40 (PERTH); Moore River National Park, 7 Oct. 1979, *J. Dodd* 50 (PERTH); W of Ellenbrook, S of Muchea, 8 Sep. 1992, *E.A. Griffin* 6801 (PERTH); Gnangara, 19 Sep. 1945, *C.A. Gardner* 7662 (PERTH); Gnangara, 19 Sep. 1945, *C.A. Gardner* 7689 (PERTH); Melaleuca Park conservation area, 12 km NE of Wanneroo, 19 Oct. 1993, *N. Gibson & M.N. Lyons* 1434 (PERTH); West Gironde, Gnangara, 10 Dec. 1965 *J. Havel* 224 (PERTH); Melaleuca Park, W of Bullsbrook, 17 Sep. 2000, *M. Hislop* 2127 (PERTH); Moore River National Park, 15 Sep. 1994, *E.D. Kabay* 592 (PERTH); Gnangara-Moore River State Forest, 11 Sep. 2008, *D.A. Mickle & M.L. Swinburn* 520 (PERTH); Gnangara-Moore River State Forest, 25 Sep. 2008, *D.A. Mickle & M.L. Swinburn* 521 (PERTH); Mimegarra Rd, 49 km by road SW of junction with Brand Hwy, 3 Sep. 1984, *J.R. Wheeler* 2329 (PERTH); Gnangara Pine Plantation, 22 Sep. 1981, *S.H. Wheeler s.n.* (PERTH); Chandala Nature Reserve, 2 Sep. 2006, *Wildflower Society of WA/DEC* IOPP 03/11 (PERTH); between Wanneroo and Yanchep, 27 Aug. 1957, *C.L. Wilson* 871 (PERTH).

Phenology. Most flowering specimens have been collected in September, with a smaller number in early October.

Distribution and habitat. Endemic in south-western Western Australia in the Swan Coastal Plain IBRA bioregion (Department of the Environment, Water, Heritage and the Arts 2008), mostly between Badgingarra and the Gnangara area in the northern suburbs of Perth, with two disjunct collections (*R. Archer* MET 20815, *R. Archer & M. Wood* MET 20816) from west of Keysbrook, south of Perth. Occurs in *Banksia* woodland with heathy understorey on well-drained, acidic sands, sometimes over laterite.

Conservation status. *Hibbertia sericosepala* is relatively common and widespread, including in a number of nature reserves, and is not considered to be at risk.

Etymology. From the Latin *sericeus* (silken) and *sepala* (sepals), in reference to the distinctively densely sericeous sepals.

Affinities. *Hibbertia sericosepala* is morphologically most similar to *H. helianthemoides* and *H. huegelii*. The former has 12 or 13 stamens and glabrous or sparsely hairy sepals. The latter has consistently 5-carpellate flowers, sepals that are nearly glabrous to sparsely or moderately pubescent with usually shorter, more or less appressed hairs, and leaves that are generally longer (to 65 mm) and narrower with more tightly revolute margins and only the midrib visible beneath. The flower-subtending bracts in *H. huegelii* are narrower and more acute (to attenuate) than in *H. sericosepala*, and are often green and leaf-like in texture rather than scarious. Some specimens of *H. huegelii*, particularly from the inland parts of its range around Wongan Hills (e.g. *C. Howell* 554, *C.M. Parker* 260) and York (e.g. *K.R. Newbey* 881, *A. Sole* GS 4) but also from the Eneabba area (e.g. *R.D. Hoogland* 12009, *J.R. Wheeler* 2342), have more prominently hairy sepals than is usual for the species, and the hairs are often more spreading. The indumentum on these, however, is substantially less dense than in *H. sericosepala*, and the bracts are typical for *H. huegelii*. All specimens currently at PERTH can be confidently ascribed to one or the other species.

Most specimens of *H. sericosepala* have three carpels. One specimen from the Gnangara area (*M. Hislop* 2127) and the two disjunct specimens from the Keysbrook area have 5-carpellate flowers. They are identical with other specimens of *H. sericosepala* in all other respects.

Horn (2005), in a combined phylogenetic analysis of *Hibbertia* based on ITS and *rp*116 gene sequences, placed *H. sericosepala* (as *H.* sp. Gnangara) in a well-supported clade comprising *H. depressa* Steud., *H. notibractea* J.R.Wheeler, *H. fitzgeraldensis* J.R.Wheeler, *H. hibbertioides* (Steud.) J.R.Wheeler and *H. rupicola* (S.Moore) C.A.Gardner. Of these, *H. depressa* is morphologically most similar to *H. sericosepala*, sharing with it spreading, sericeous hairs on the sepals and a tendency for the leaves and flowers to be fascicled. All these species, however, have substantially shorter leaves, smaller flowers and fewer stamens (9–17, the maximum in *H. rupicola*), than *H. sericosepala* and are readily distinguished from it. Only *H. hibbertioides* is geographically close to *H. sericosepala*, but occurs further east typically in wandoo woodlands on clay soils.

Acknowledgements

I thank Jonica and Peter Foss for collecting excellent type material of this species, and Mike Hislop, Juliet Wege and the editors of *Nuytsia* for helpful comments on the manuscript.

References

Bentham, G. (1863). *Flora Australiensis: a description of the plants of the Australian Territory, vol. 1 Ranunculaceae to Anacardiaceae*. (L. Reeve & Co.: London).

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 14 October 2009].

Horn, J.W. (2005). The phylogenetics and structural botany of Dilleniaceae and *Hibbertia* Andrews. PhD thesis: Department of Biology, Graduate School, Duke University.

Thiele, K.R. (2009). Three new species of *Hibbertia* (Dilleniaceae) from Western Australia. *Nuytsia* 19: 283–293.

Thiele, K.R. (2012). Rediscovery and reinstatement of *Hibbertia leptopus* (Dilleniaceae), an overlooked and apparently rare species from Western Australia. *Nuytsia* 22(3): 121–124.

Toelken, H.R. (1995). Notes on *Hibbertia*. I. New taxa from south-eastern Australia. *Journal of the Adelaide Botanic Gardens* 16: 59–72.

Toelken, H.R. (1998). Notes on *Hibbertia* (Dilleniaceae) 2. The *H. aspera* - *empetrifolia* complex. *Journal of the Adelaide Botanic Gardens* 18(2): 107–160.

Toelken, H.R. (2000). Notes on *Hibbertia* (Dilleniaceae) 3. *H. sericea* and associated species. *Journal of the Adelaide Botanic Gardens* 19: 1–53.

Toelken, H.R. (2010). Notes on *Hibbertia* (Dilleniaceae) 5. *H. melhanioides* and *H. tomentosa* groups from tropical Australia. *Journal of the Adelaide Botanic Gardens* 23: 1–117.

Wege, J.A. & Thiele, K.R. (2009). Two new species of *Hibbertia* (Dilleniaceae) from near Ravensthorpe in Western Australia. *Nuytsia* 19(2): 303–310.

Western Australian Herbarium (1998–). *FloraBase—the Western Australian Flora*. Department of Parks and Wildlife. http://florabase.dpaw.wa.gov.au [accessed 29 August 2013].

Wheeler, J.R. (2002a). A review of *Hibbertia glomerosa sens. lat.* (Dilleniaceae). *Nuytsia* 14(3): 411–418.

Wheeler, J.R. (2002b). Two new species of *Hibbertia* section *Candollea* (Dilleniaceae) from the south-west of Western Australia. *Nuytsia* 14(3): 419–426.

Wheeler, J.R. (2002c). Three new subspecies of *Hibbertia glomerata* (Dilleniaceae) from the Darling Range, Western Australia. *Nuytsia* 14(3): 427–435.

Wheeler, J.R. (2002d). A revision of *Hibbertia depressa* and its allies (Dilleniaceae) from Western Australia. *Nuytsia* 15(1): 127–138.

Wheeler, J.R. (2004a). A review of *Hibbertia hemignosta* and its allies (Dilleniaceae) from Western Australia. *Nuytsia* 15(2): 277–298.

Wheeler, J.R. (2004b). Miscellaneous new *Hibbertia* species (Dilleniaceae) from the south coast and adjacent interior of Western Australia. *Nuytsia* 15(2): 299–310.

Wheeler, J.R. (2004c). An interim key to the Western Australian species of *Hibbertia* (Dilleniaceae). *Nuytsia* 15(2): 311–320.