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# Three new subspecies of *Hibbertia glomerata* (Dilleniaceae) from the Darling Range, Western Australia

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## Abstract

Wheeler, J.R. Three new subspecies of *Hibbertia glomerata* (Dilleniaceae) from the Darling Range, Western Australia. *Nuytsia* 14(3): 427–435 (2002). A lectotype is selected for the south-western Australian species *Hibbertia glomerata* Benth. Three new subspecies, *Hibbertia glomerata* subsp. *darlingensis* J.R. Wheeler from the Darling Scarp, *H. glomerata* subsp. *ginginensis* J.R. Wheeler from the Gingin area and *H. glomerata* subsp. *wandoo* J.R. Wheeler from the eastern Darling Range, are described and illustrated. A key is provided to the subspecies.

## Introduction

*Hibbertia glomerata* was first described by George Bentham (Bentham 1863) from material collected by James Drummond in 1843 from the somewhat broad locality "Swan River". Lectotypification is needed as the type material from Kew is a mixed collection of several taxa.

Examination of the PERTH collections of Dilleniaceae during the preparation of a treatment of the family for the "Flora of the Perth Region" (Wheeler 1987), showed considerable variation within *Hibbertia glomerata* and allusions were made there to the presence of further taxa. Additional collections over the past few years have enabled the recognition of four infra-specific taxa, two with mostly free stamens and the other two with stamens in fascicles.

The original description of *Hibbertia glomerata* does not state whether the stamens are free or fused into fascicles. However as Bentham has placed the species into the genus *Hibbertia* Andrews, in which the stamens are free or almost so, and not into the genus *Candollea* Labill. *nom. illeg.*, in which the stamens are united into fascicles, it is assumed that he perceived *H. glomerata* to be a taxon with free stamens.

Taxa with stamens fused into fascicles are normally placed in *Hibbertia* section *Candollea* Gilg. However, in this case the staminal differences between the taxa housed under *H. glomerata* are considered insufficient to warrant distinction even at the species level. This case illustrates the need for a review of the sectional boundaries of the genus *Hibbertia*. There is thought to be a similar breakdown of this traditional sectional boundary in the *Hibbertia exasperata* (Steud.) Briq. complex.

## Taxonomy

**Hibbertia glomerata** Benth., Fl. Austral. 1: 34 (1863). *Type:* Swan River, [Western Australia], 1843, *J. Drummond*, 1st coll. no. 8 (*lecto:* K sheet stamped "Herbarium Hookerianum" and also annotated "stam. 8–10 libera, staminodia 0, ov. 3 glabra 1-ovulate", here designated; *isolecto:* K, LD, MEL 612823).

*Shrub* much-branched, usually to 0.5 m high but sometimes to 1 m; branchlets with prominent leaf scars, the young branchlets glabrous or minutely and sparsely puberulous. *Leaves* spirally arranged, sessile, sometimes dimorphic; floral leaves or all leaves oblong, narrowly obovate, or ovate to elliptic, 3–12 mm long, 1.5–7 mm wide, glabrous or with sparse hairs, base rounded to cordate or gradually tapered, margin entire and smooth or very slightly undulate and irregularly minutely crenulate, rarely sparsely ciliolate, apex obtuse or shallowly emarginate to subacute (rarely acute), the midrib often extended in a minute blunt apiculum which is often somewhat recurved; sometimes longer narrowly oblong leaves are present on the lower part of the plant and also basal to each of the short flowering shoots. *Flowers* solitary, sessile, (8)10–15 mm diam., terminating short axillary shoots. *Bracts* at base of flower usually 3, ovate, 0.5–1.5 mm long, inconspicuous, entire or sparsely minutely ciliolate, the outer bract usually acute and the others more or less obtuse. *Sepals* 5, connate basally, elliptic, (3)4–7 mm long, either all more or less equal in length or the outer two smaller, glabrous, obtuse to subacute or apiculate, rarely acute. *Petals* 5, yellow, obovate, (3.5)5–10 mm long, emarginate. *Stamens* 10–12, either all free and grouped between the carpels, or 9 of them distinctly fused into 3 fascicles and the remaining 2 free, rarely fusion of filaments irregular or very short; anthers narrowly oblong to narrowly elliptic, (1)1.2–2 mm long; staminodes absent. *Carpels* 3, glabrous; ovule 1 per carpel; style spreading, 1.5–2.5 mm long. *Fruitlets* obovoid, 2–3 mm high. *Seeds* brown, globular, *c.* 1.5 mm diam., with a white greatly divided aril.

*Typification.* The mixed type material from Kew comprises three sheets which Bentham apparently used for his description of *H. glomerata*.

One of the sheets has two pieces of plant material and is stamped "Herbarium Benthamianum 1854". The left piece is labelled "Swan River, Drummond 1839" and this is now recognised as *Hibbertia glomerata* subsp. *darlingensis*. The right hand piece, with a label "Swan River Drummond 8 1843" and "*Pleurandra* ?" in pencil, is here regarded as an isolectotype of *Hibbertia glomerata*.

The other two sheets, each with four pieces, are both stamped "Herbarium Hookerianum 1867" and bear the label "*Candollea* Swan River Drummond 8". One of these two sheets is annotated "stam. 8–10 libera, staminodia 0, ov. 3 glabra 1-ovulate", and it is this sheet which is here designated the lectotype of *Hibbertia glomerata*, being a complete sheet of uniform material and appearing to be from the same gathering as the right hand piece on the previous sheet.

The remaining sheet, again with the label "*Candollea* Swan River Drummond 8", is annotated "stam. circa 20–25, staminodia 0, ovaria 3 glabra 2-ovulate". This third sheet is material matching *Hibbertia commutata* Steud. and is not considered part of the type material, although it appears that Bentham did also use this material in drawing up his original description. Bentham (1863) mentions "stamens 10 to 15, or rarely above 20" and it is only the material on this latter sheet which has more than 12 stamens; Bentham also states "carpels 3, glabrous, 1- or 2-ovulate" and it is only the *Hibbertia commutata* material which has 2-ovulate carpels.

*Notes.* Bentham (1863) also tentatively named a new variety of *Hibbertia glomerata* as var. ? *canescens* Benth. and cited two syntypes: Gordon River, *Oldfield* and "rock at Oolingarran, Herb. *Mueller*". Neither of these syntypes belongs to *H. glomerata*. Material from the National Herbarium of Victoria of the first of these syntypes, labelled "Oldfield, Gordon River, WA" with the number 523 (MEL 666852), is a collection of *Hibbertia commutata* Steud. Material of the other syntype labelled "rock at Oolingarran, Herb. *Mueller*" (MEL 612824) is a collection of *Hibbertia potentilliflora* Benth.

**Key to subspecies of *Hibbertia glomerata***

1. Stamens 10–12, all free or some with very short or irregular fusion.
   2. Leaves all similar, narrowly obovate or oblong to oblong-elliptic.
      3. Leaves narrowly obovate. Sepals apiculate, the outer sepals shorter than the inner sepals. ..... subsp. **wandoo**
      3. Leaves narrowly oblong. Sepals obtuse, all less more or equal in length ..... subsp. **darlingensis** (intermediate variant)
   2. Leaves usually dimorphic: floral leaves ovate to elliptic, usually somewhat undulate and very minutely crenulate; leaves basal to the flowering shoots much longer and narrowly oblong ..... subsp. **glomerata**
1. Stamens 11, 9 of them distinctly fused into 3 fascicles and 2 of them single.
   4. Leaves all similar, oblong to oblong-elliptic, glabrous, 1.5–4 mm wide ..... subsp. **darlingensis**
   4. Floral leaves ovate to elliptic, sometimes minutely ciliolate, 2.5–6.5 mm wide, sometimes also with elongated leaves basal to the flowering shoots ..... subsp. **ginginensis**

**Hibbertia glomerata** Benth. subsp. **glomerata**

*Shrub* erect, much-branched, to 1 m high. *Leaves* usually green, usually dimorphic but the basal ones sometimes caducous or apparently absent; floral leaves on the short axillary shoots ovate to elliptic, rarely obovate, (3.5)4–11 mm long, (2)3–7 mm wide, usually glabrous, the margin usually very slightly undulate and minutely crenulate, apex often recurved with a tiny blunt apiculum; leaves basal to the axillary flowering shoots often elongated, narrowly oblong, narrowly ovate or narrowly obovate, up to 25 mm long. *Bracts* glabrous or ciliolate. *Sepals* (3)4–7 mm long, all more or less equal in length; outer sepals obtuse to subacute, rarely acute; inner sepals obtuse to subacute. *Petals* (3.5)5–10 mm long. *Stamens* 10–12, all free; filament 1–1.5(2) mm long; anther (1)1.2–1.5 mm long. (Figure 1A–D)

*Selected specimens examined* (all PERTH). WESTERN AUSTRALIA: 600 m down walk trail from summit of Mt Lindesay, 25 Sep. 1991, *A.R. Annels* 1738; 7.6 km from highway on Sunny Glen Rd, 1.6 km along track to left, Denmark, 15 Sep. 1991, *A.R. Annels* 1745; Coalfields Rd, 5 km W of Bowelling, 13 Sep. 1998, *V. Crowley* 911; Mt Lindesay, N of Denmark, Oct. 1989, *B.G. Hammersley* 230; along Stewart Rd, *c.* 1 mile [1.6 km] from Brockman Highway, 26 Oct. 1971, *R.D. Hoogland* 12209 (duplicates CANB, BM, L, A, BISH, B all *n.v.*); Smith Rd, 20 km NE of Cowaramup (plot Smith 03), 11 Nov. 1993, *B.J. Keighery & N. Gibson* 638; 23.2 km, 5 deg. W of South of Capel and 32 km NW of Nannup, 27 Sep. 1993, *F.H. & M.P. Mollemans* 4440-2; Metricup, S of Busselton, 9 Oct. 1957, *R.D. Royce* 5771; Whicher Range, Sabina Rd, 2.7 km by road NE from junction with Jalbarragup Rd (S of Busselton), 9 Sep. 1983, *J.R. Wheeler* 2173; Stewart Rd, 1.5 km from Nannup–Augusta road, Canebrake Picnic Area, 7 Sep. 1985, *J.R. Wheeler* 2399; Denmark–Mount Barker road, *c.* 8 km N of intersection with South Coast Highway, 26 Sep. 1986, *J.R. Wheeler* 2461.

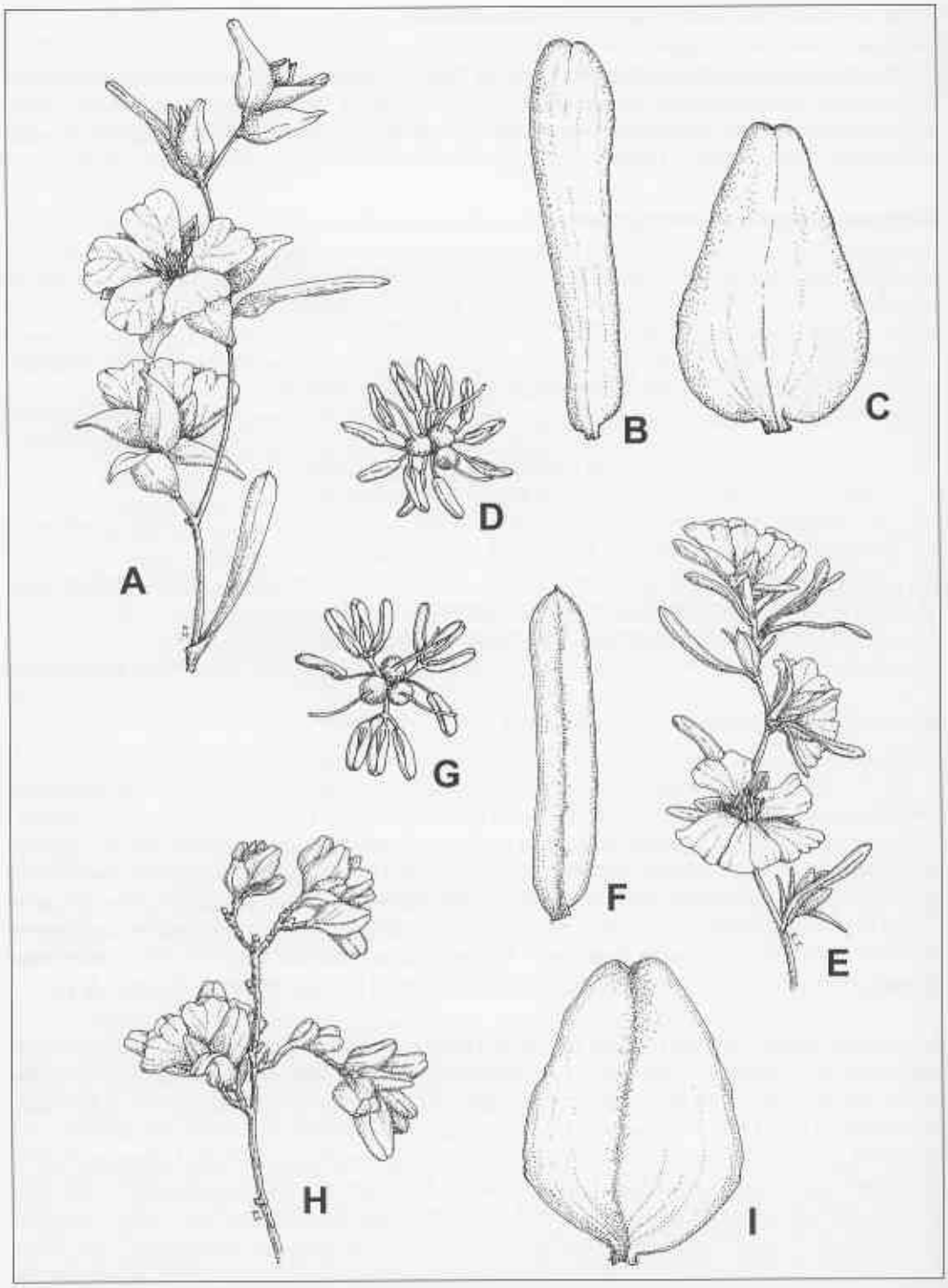


Figure 1. A–D. *Hibbertia glomerata* subsp. *glomerata*, drawn from *J.R. Wheeler* 2399 and *R.D. Hoogland* 12208. A – flowering branch (x2); B – basal leaf (x8); C – floral leaf (x8); D – stamens and carpels (x8). E–G. *Hibbertia glomerata* subsp. *darlingensis*, drawn from PERTH 03098087. E – flowering branch (x2); F – leaf (x8); G – stamens and carpels (x8). H, I. *Hibbertia glomerata* subsp. *ginginensis*, drawn from *E.M. Canning* 3575. H – flowering branch (x2); I – floral leaf (x8).

*Distribution.* Western Australia, IBRA regions (Thackway & Cresswell 1995) of Jarrah Forest and Warren. Recorded from Collie to the south-west corner of the state, with a disjunct occurrence in the east at Mt Lindesay and a northern outlier recorded near Nanga. (Figure 2)

*Habitat.* Recorded from a variety of habitats, most commonly forest or woodland but also from heath and in one case from a swamp. Found most commonly on sand, sandy loam, clay or granitic soils.

*Flowering period.* Flowers mostly September to November, but recorded as early as July.

*Conservation status.* Widely distributed in the south-west of the state and not apparently under threat.

*Notes. Hibbertia glomerata* subsp. *glomerata* is distinguished by its dimorphic leaves, the floral leaves usually ovate to elliptic in shape and with a very slightly undulate and minutely crenulate margin, whereas the lower leaves or those basal to the flowering shoots are much longer and narrowly oblong in shape. Subsp. *glomerata* occurs to the south of the other subspecies and usually on more sandy soils.

There is some geographical variation in this subspecies but the variants are not considered sufficiently distinct to warrant formal taxonomic recognition. Northern outliers from near Bowelling have more acute floral leaves, as do some specimens from near Nannup.

In the disjunct south eastern area, the specimens from Mt Lindesay itself are somewhat stunted in appearance, possibly somewhat windswept due to their location towards the summit of the mountain. They have small, fairly uniform, ovate leaves 3.5–6 mm long, occasionally sparsely hairy particularly towards the apex and with a sparsely and minutely ciliolate margin. Their smaller sepals are 3–4 mm long. Specimens from lower areas surrounding Mt Lindesay have slightly larger leaves with the occasional narrowly oblong leaves to 20 mm long and more closely resemble specimens from further west.

**Hibbertia glomerata** subsp. **darlingensis** J.R. Wheeler, *subsp. nov.*

*Hibbertiae glomeratae* subsp. *glomeratae* similis sed foliis floralis oblongis usque oblongo-ellipticis, 9 staminum in fasciculos 3 separatos conjunctis differt.

*Typus:* Jarrahdale scenic road, 8 km by road from South West Highway, 32°16'S, 116°04'E, Western Australia, 5 October 1983, *J.R. Wheeler* 2234 (*holo:* PERTH 03072703; *iso:* AD, CANB, K).

*Shrub* floriferous, compact and often tortuous, to 0.3 m high. *Leaves* often grey or glaucous, mostly all similar; floral leaves oblong or oblong-elliptic, 4–10 mm long and 1.5–4 mm wide, the apex often recurved with a tiny blunt apiculum, the margin usually entire, very occasionally with minute sparse cilia towards the base; leaves basal to the axillary flowering shoots, not or only very slightly larger up to 15 mm long. *Bracts* usually glabrous. *Sepals* 5–7 mm long, all more or less equal in length; outer sepals obtuse or less often subacute; inner sepals obtuse. *Petals* 6–9 mm long. *Stamens* 11, 9 of them distinctly fused for more than half their length into 3 fascicles each of 3 stamens, the remaining 2 single stamens free; filament (1.2)1.5–2 mm long; anther usually 1.5–2 mm long. (Figure 1E–G)

*Selected specimens examined* (all PERTH). WESTERN AUSTRALIA: Kalamunda, Aug. 1919, *Miss E. Allum s.n.*; rubbish tip track off Cheverin Rd, Roleystone, 2 Oct. 1981, *R.J. Cranfield s.n.*; Camp Gully Rd, 1.4 km W of Capel–Donnybrook road, 21 Oct. 1997, *R. Davis* 4354; Swan River, *J. Drummond* 1st coll. n. 8 (not as to lectotype of *H. glomerata*); AMG-Zone 50 392368m E 6549266m

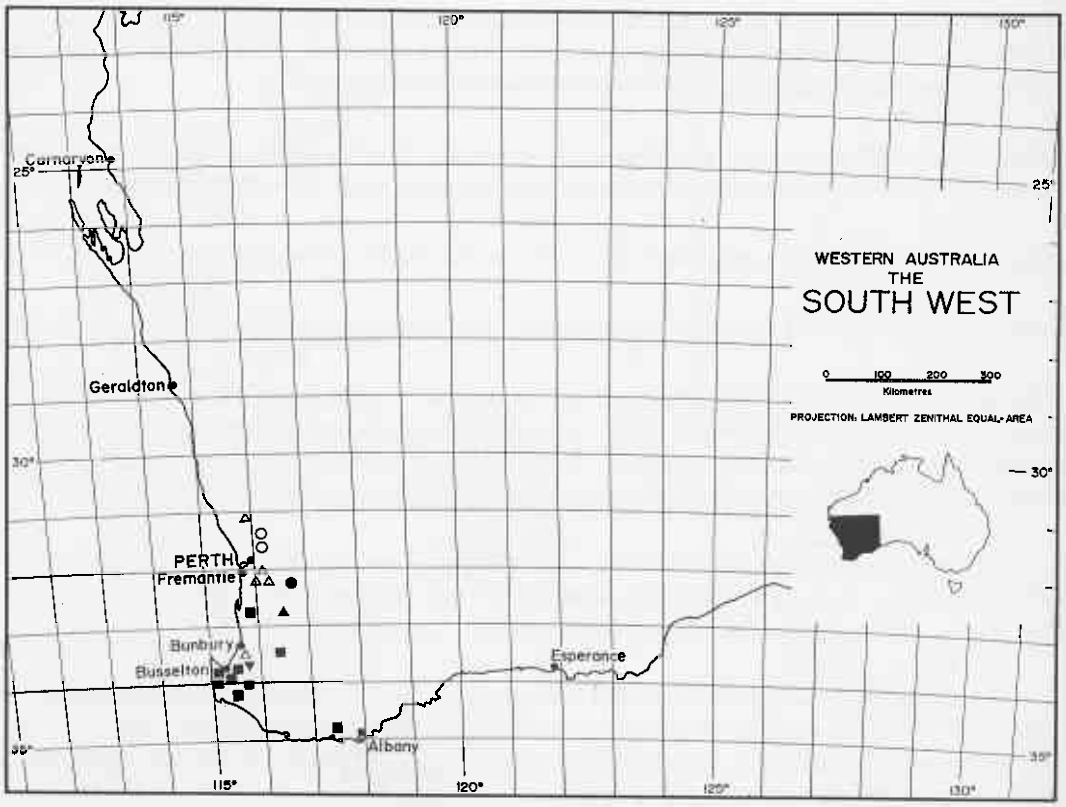


Figure 2. Distribution of *Hibbertia glomerata* subsp. *glomerata* ■; *Hibbertia glomerata* subsp. *darlingensis* △; *Hibbertia glomerata* subsp. *ginginensis* ○; *Hibbertia glomerata* subsp. *wandoo* ●; intermediate variant with stamen bundles fused only basally ▼ and intermediate variant with free stamens ▲.

N, E of Brand Highway, S of Wannamal West Rd, N of Gingin, 16 Dec. 1992, *E.A. Griffin* 8482; Kalamunda, 19 km E of Perth, 7 Aug. 1985, *R. & M. Hamilton* 144 (duplicate MEL *n.v.*); Armadale Settlers Common, off Carradine Rd, to E of 4WD track (Plot -ARSC03), 14 Oct. 1996, *A. Markey* 359; 24 miles [39 km] from Perth along Albany Highway, 30 Sep. 1968, *M.E. Phillips* WA/68 1900 (duplicate CBG *n.v.*); Mills Rd, Gosnells (top of scarp), Sep. 1971, *B.A. Rockel* 10; Gooseberry Hill, 8 Sep. 1957, *R.D. Royce* 5741; 5 km NE of Armadale on Churchman Brook Rd, 1 Sep. 1974, *G.L. Stebbins & A. Weston* A 36; Albany Highway, *c.* 8 km from junction with South West Highway, near road train assembly area, 26 Sep. 1983, *J.R. Wheeler* 2195.

*Distribution*. Western Australia, IBRA regions (Thackway & Cresswell 1995) of Swan Coastal Plain and Jarrah Forest. Recorded from the Darling Scarp mainly near Perth but extending south to Jarrahdale, with a disjunct population between Capel and Donnybrook and a single collection north of Gingin. (Figure 2)

*Habitat*. Recorded from forest, woodland or roadside verges on lateritic soils.

*Flowering period*. Flowers mostly August to October, but recorded as early as June.

*Conservation status*. Not believed to be under any threat.

*Etymology*. Named after the Darling Range where this subspecies occurs.

*Notes*. Previously known by the informal name *Hibbertia* sp. Darling Range (*R.D. Royce* 5741). *Hibbertia glomerata* subsp. *darlingensis* differs from subsp. *glomerata* and subsp. *wandoo* in having the constant number of 11 stamens, 9 of which are fused into 3 fascicles. Its slightly longer anthers and the uniformity of its leaves which are all oblong to oblong-elliptic, separate it from subsp. *glomerata*. Apart from the northern outlier (*E.A. Griffin* 8482) which occurs on an upland plain on sandy gravel, this subspecies is restricted to lateritic soils of the Darling Scarp and western part of the Darling Range and is not known to occur in association with either of the other subspecies. It differs from *H. glomerata* subsp. *ginginensis* in its uniform oblong to oblong-elliptic leaves and from subsp. *wandoo* in leaf shape and sepals.

Two specimens (*R. Davis* 131, *R. Davis* 4354) from the southern limits of the Darling Range between Capel and Donnybrook, with narrowly oblong to obcuneate leaves and small flowers, may be a southern extension of subsp. *darlingensis*, but with their stamens fused only basally into fascicles. Three collections (*D. Halford* 80724, *J.R. Wheeler* 2206, *J.R. Wheeler* 2208) from near Boddington have foliage similar to this subspecies but apparently have free stamens. The status of these latter three specimens, which are probably all from a single population, is uncertain. (Figure 2)

**Hibbertia glomerata** subsp. **ginginensis** J.R. Wheeler, *subsp. nov.*

*Hibbertiae glomeratae* subsp. *glomeratae* similis sed 9 staminum in fasciculos 3 separatos conjunctis differt; a subsp. *darlingensi* foliis floralis latioribus, ovatis usque ellipticis differt.

*Typus:* Mooliabeenee Rd, 14.9 km from Gingin towards Bindoon, 31°21'S, 116°05'E, Western Australia, 5 September 1982, *J.R. Wheeler* 2035 (*holo:* PERTH 03072959; *iso:* AD, CANB, K).

*Shrub* erect, to 0.5 m high. *Leaves* often grey or glaucous, sometimes dimorphic; floral leaves ovate to elliptic, 3.5–10 mm long, 2.5–6.5 mm wide, occasionally with a few hairs towards the base of the upper surface, the apex often somewhat recurved with a minute blunt apiculum, the margin usually entire or sometimes very slightly undulate and minutely crenulate, sometimes minutely ciliolate towards the base; leaves basal to the flowering shoots sometimes longer, up to 22 mm long, often caducous or apparently absent. *Bracts* often minutely ciliolate. *Sepals* 4–6 mm long, all more or less equal in length, all obtuse. *Petals* 5–8 mm long. *Stamens* 11, 9 of them distinctly fused for more than half their length into 3 fascicles each of 3 stamens, the remaining 2 single stamens free; filament 1.5–2 mm long; anther usually 1.5–2 mm long. (Figure 1H,I)

*Other specimens examined* (all PERTH). WESTERN AUSTRALIA: E side of Great Northern Highway at 36 mile peg [23 km S of Bindoon], *Anon*; 15.6 km from Gingin towards Bindoon (at Moora–Mogumber turnoff), 28 Sep. 1968, *E.M. Canning* WA/68 3571 (duplicates CBG *n.v.*); 15.6 km from Gingin towards Bindoon (at Moora–Mogumber turnoff), 28 Sep. 1968, *E.M. Canning* WA/68 3575 (duplicates CANB, CBG *n.v.*); 15 km E of Gingin, 14 Sep. 1995, *R. Davis* 90; Chittering–Muchea road, 14 Aug. 1983, *F.W. Phillips s.n.*; 16 km E of Gingin along Mooliabeenee Rd, 28 July 1983, *J.R. Wheeler* 2047.

*Distribution.* Western Australia, IBRA region (Thackway & Cresswell 1995) of Swan Coastal Plain. Recorded only from the Gingin area north of Perth. (Figure 2)

*Habitat.* Recorded from forest and woodland on laterite, clay-lateritic soil and sandy soil.

*Flowering period*. Flowers recorded July to September.

*Conservation status*. Conservation Codes for Western Australia Flora: Priority One. Fairly restricted, recorded mainly along roadsides north and east of Gingin.

*Etymology*. The name *ginginensis* refers to the Gingin area in which this subspecies occurs.

*Notes*. *Hibbertia glomerata* subsp. *ginginensis* differs from subsp. *glomerata* in staminal characters, from subsp. *darlingensis* in its leaf shape and from subsp. *wandoo* in both leaf shape and staminal characters (see key). It is well separated geographically from subsp. *glomerata* and subsp. *wandoo* and occurs north of the main range of subsp. *darlingensis* and to the south-east of the single northern outlier of the latter.

**Hibbertia glomerata** subsp. **wandoo** J.R. Wheeler, *subsp. nov.*

*Hibbertiae glomeratae* subsp. *glomeratae* affinis sed foliis aequabiliter, anguste obovatis, et sepalis apiculatis inaequalibus extimis brevioribus differt.

*Typus*: Wandoo Conservation Park, 5.9 km east of Dobaderry Rd on Dale West Rd and 3 km south-south-west on track along eastern boundary of forest block, Beverley, Western Australia, 32°16'S, 116°40E, 22 February 2000, *F. Hort* 944 ( *holo:* PERTH 05604591; *iso:* AD, CANB, K, MEL, NSW).

*Shrub* erect, much-branched, to 0.6 m high. *Leaves* somewhat glaucous, narrowly obovate and very gradually tapered to the base, 4–11 mm long, 1–2 mm wide, flat, glabrous; apex obtuse, sometimes minutely apiculate, rarely slightly emarginate. *Bracts* often very inconspicuous, ciliolate. *Sepals* unequal in length, obtuse and shortly but distinctly apiculate; outer sepals 3–4 mm long, *c.* 1.5 mm wide; inner sepals 4–6 mm long, 2.5–3.5 mm wide. *Stamens* 10–12 in 3 groups, the filaments free or less commonly irregularly fused or very shortly fused basally; filament 1–2 mm long; anther 1–2 mm long.

*Other specimens examined* (all PERTH). WESTERN AUSTRALIA: Dobaderry Rd, 1.7 km N of Dale West Rd intersection, 8 Oct. 1997, *R. Davis* 4245; Wandoo Conservation Park, Dale West Rd, Beverley, 5 Aug. 1999, *F. Hort* 530; Wandoo Conservation Park, Dale West Rd, Beverley, 28 Apr. 1999, *J.& F. Hort* 455; Wandoo Conservation Park, Dale West Rd, Beverley, 28 Apr. 1999, *J.& F. Hort* 456; Boyagarring Nature Reserve, 0.7 km S of NW corner on Pike Rd, 9 Jan. 1999, *L. Sage, F. Hort & J. Hort* LWS 1461; Edge of Wandoo Conservation Park, Dale West Rd, 6.6 km W of Beverley–Westdale road, Shire of Beverley, 9 Oct. 2001, *J.R. Wheeler* 4126; Dobaderry Rd, 1.5 km N of Dale West Rd, Shire of Beverley, 9 Oct. 2001, *J.R. Wheeler* 4127; Dobaderry Rd, 1.5 km N of Dale West Rd, Shire of Beverley, 9 Oct. 2001, *J.R. Wheeler* 4128.

*Distribution*. Western Australia, IBRA region (Thackway & Cresswell 1995) of Jarrah Forest, restricted to an area south west of Beverley to Boyagarring Hill. (Figure 2)

*Habitat*. Recorded from lateritic soils in Wandoo woodland and from pockets of Jarrah-Marri within Wandoo woodland.

*Phenology*. Flowers recorded February, April, August and October; fruits recorded for January.

*Conservation status*. Conservation Codes for Western Australian Flora: Priority Three. Restricted in distribution but not considered to be under immediate threat as it has been recorded as "plentiful" in a conservation park, although its response to attack by *Phytophthora* has not been documented.

*Etymology*. Named after the habitat in which this subspecies is commonly found, Wandoo woodland.

*Notes*. Previously known by the informal name *Hibbertia* sp. Wandoo (*J. & F. Hort* 456). This subspecies differs from all other subspecies of *H. glomerata* in its narrowly obovate leaves, which are more conspicuously rounded at the apex and gradually tapered to the base. It differs also in its shortly but distinctly apiculate sepals, of which the outermost sepals are the shortest. Subsp. *wandoo* shares with subsp. *glomerata* the character of mostly free stamens, although some filaments are occasionally irregularly fused or fused very shortly into fascicles. However it differs from subsp. *glomerata* in the uniformity of its leaves (absence of different basal leaves) as well as in its leaf shape and sepal characters. Although like subsp. *darlingensis*, this subspecies occurs in the Darling Range, its occurrence is much further east than is known for subsp. *darlingensis*.

## Discussion

The differences between these taxa are insufficient for separation at the species level, particularly with the presence of intermediate collections which remain of uncertain status (see notes under subsp. *darlingensis*). Despite some overlap in the overall geographic ranges of the taxa, there are no records of any pair of them occurring together. There may be some edaphic differences between subspecies. Both subsp. *darlingensis* and subsp. *wandoo* occur on lateritic soils whereas subsp. *glomerata* usually is found on sandy soils. Subsp. *ginginensis* is known from both lateritic and sandy soils but appears to be geographically separated from the other two subspecies. In view of the degree of the differences between the taxa and the complex inter-relationship between them it is considered best to differentiate them at the subspecific level.

## Acknowledgements

I should like to thank the Director and staff of the Western Australian Herbarium for access to the state collection and also the directors and staff of K, LD and MEL for allowing me to borrow the type material of *Hibbertia glomerata*. Thanks to Kath Trafalski for the fine illustration and to Paul Wilson for translating the brief Latin diagnoses. Thanks also to Leigh Sage who first brought subsp. *wandoo* to my attention.

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