

## A review of *Hibbertia glomerosa sens. lat.* (Dilleniaceae)

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### Abstract

Wheeler, J.R. A review of *Hibbertia glomerosa sens. lat.* (Dilleniaceae). *Nuytsia* 14(3): 411–418 (2002). A lectotype is chosen for the south-western Australian species *Hibbertia glomerosa* (Benth.) F. Muell. and two new taxa are distinguished amongst the material previously placed under that name. The new taxa, *Hibbertia glabrisepala* J.R. Wheeler from the Kalbarri–Geraldton area and *H. glomerosa* var. *bistrata* J.R. Wheeler, from the Mullewa area, are described and illustrated.

### Introduction

Examination of the collections housed as *Hibbertia glomerosa* (Dilleniaceae) in the Western Australian Herbarium (PERTH) has revealed the presence of three taxa. Two of these differ from one another only in indumentum characters and are regarded as varieties. The third shows significant differences from the other two taxa, including its almost glabrous calyx and smaller stamen number, and is regarded as a separate species. This species group belongs to *Hibbertia* sect. *Candollea* Gilg.

When Bentham (1863: 43) originally described *Hibbertia glomerosa* [as *Candollea glomerosa*], he took a broad view of the taxon, apparently encompassing both of the above species as indicated by his statement “Calyx clothed with long, silky, or woolly hairs, or sometimes quite glabrous”. However, his description of the stamens “in 5 bundles of 4–6 each” matches the species with the larger number of stamens. A lectotype is chosen here accordingly and the taxon with fewer stamens is described below as the new species *H. glabrisepala*.

Also mentioned under Bentham’s original description of *Candollea glomerosa* is var. *subsericea* Benth., a taxon with only three carpels, fewer stamens and very shortly pedunculate flowers. The type of this, “Swan River, Drummond” at Kew, does not appear to be closely related to *Hibbertia glomerosa* and probably has more affinity with *Hibbertia racemosa* (Endl.) Gilg.

### Taxonomy

#### Key to taxa of the *Hibbertia glomerosa* group

1. Sepals more or less glabrous. Stamens 15, in 5 fascicles  
each with 3 anthers ..... ***H. glabrisepala***

1. Sepals with conspicuous pilose hairs. Stamens (20)25–38, in 5 fascicles each with 4–8 anthers.
2. Leaves with a short felted indumentum. Sepals with short hairs underlying pilose hairs ..... **H. glomerosa** var. **bistrata**
2. Leaves more or less glabrous. Sepal indumentum of pilose hairs only ..... **H. glomerosa** var. **glomerosa**

**Hibbertia glabrisepala** J.R. Wheeler, *sp. nov.*

[*Candollea glomerosa* Benth., Fl. Austral. 1: 43 (1863) *p.p.* as to the excluded syntype, *Oldfield*, Port Gregory (MEL 666853), not as to lectotype.]

*Hibbertiae glomerosae* affinis sed sepalis fere glabris et staminibus paucioribus differt.

*Typus*: Red Bluff, Junction of road to Red Bluff and Airport road, 27°43'S, 114°09'E, Western Australia, 6 September 1984, *J.R. Wheeler* 2376 (*holo*: PERTH 04395387; *iso*: K, AD, CANB, MEL, NSW).

*Shrub* to 1 m high; branchlets glabrous apart from the tips of young shoots, usually scarred by fallen leaves. *Leaves* linear to narrowly oblong, 9–20(40) mm long and (0.8)1–3 mm wide, flat but with recurved margins, glabrous; base dilated and stem-clasping, the margin ciliolate; apex more or less obtuse, often with a minute blunt point from the extending midrib. *Flowers* terminating short shoots, single or in small clusters, sessile, 15–20 mm across; bracts 2 or 3, brownish, circular to very broadly obovate, fairly rigid, 3–5 mm long with a tiny to elongated leaf-like tip up to an additional 5 mm long, glabrous apart from a ciliolate margin. *Sepals* connate basally, elliptic, 6–10.5 mm long, glabrous or almost so apart from occasional minute appressed hairs and a ciliolate margin; outer sepals shortly acute; inner sepals broader, more obtuse, the margins membranous and more distinctly ciliolate. *Petals* bright yellow, obovate, 6–11 mm long, apically notched. *Stamens* 15, in 5 fascicles each of 3 stamens, two of the anthers held side by side and one held in front of the other two; filaments fused in the lower half; anthers narrowly oblong and dehiscing by longitudinal slits. *Carpels* 5, globular, glabrous, each with a radiating style; ovule 1 per carpel. *Fruiting carpels* obovoid, *c.* 3.5 mm long and 2 mm wide; seed brown, ellipsoid, *c.* 2 mm long and 1.5 mm wide, with a small translucent waxy aril. (Figure 1)

*Selected specimens examined* (all PERTH) WESTERN AUSTRALIA: Kalbarri, 29 June 1978, *D. & B. Bellairs* 1300; W of Mullewa, 23 Aug. 1964, *J. Galbraith* 446A; AMG-Zone 50 375426 m E 6705439 m N; Brand Mudge Rd, W of Winchester, 7 Oct. 1992, *E.A. Griffin* 7080; *c.* 2 miles [3 km] E of Kalbarri, along road to Ajana, 20 Sep. 1971, *R.D. Hoogland* 11991 (duplicates CANB, K, L, US, BRI, HBG, A, TNS all *n.v.*); *c.* 8 miles [13 km] due SE of Yuna, 9 Nov. 1974, *R.D. Hoogland & G.L. Stebbins* 12483 (duplicates CANB, UC, L, HBG, US all *n.v.*); east-west track S of central southern boundary of Cooloomia Nature Reserve, 5.35 km E of cross-roads (E track to Nerren Nerren), 3 Aug. 1996, *G.J. Keighery & N. Gibson* 2042; Port Gregory, *Oldfield*; 26.3 km from Port Gregory along Yerina Springs road, 15 Aug. 1985, *N. Sammy* *s.n.*; 25 km E of Naraling, along road from Yuna to Eradu, 30 Aug. 1974, *G.L. Stebbins & G. Keighery* A17; Red Bluff, junction of road to Red Bluff and Airport road, 6 Sep. 1984, *J.R. Wheeler* 2378 (duplicates MEL, AD); Hutt River Crossing with Northampton–Port Gregory road, 7 Sep. 1984, *J.R. Wheeler* 2382 (duplicates AD, K, CANB); Kalbarri township, *c.* 500 km N of Perth, 10 May 1968, *P.G. Wilson* 6647.

*Distribution*. Western Australia, South West Botanical Province, IBRA region (Thackway & Cresswell 1995) of Geraldton Sandplain, extending from Cooloomia Nature Reserve south to west of Winchester and inland to near Yuna. (Figure 2A)

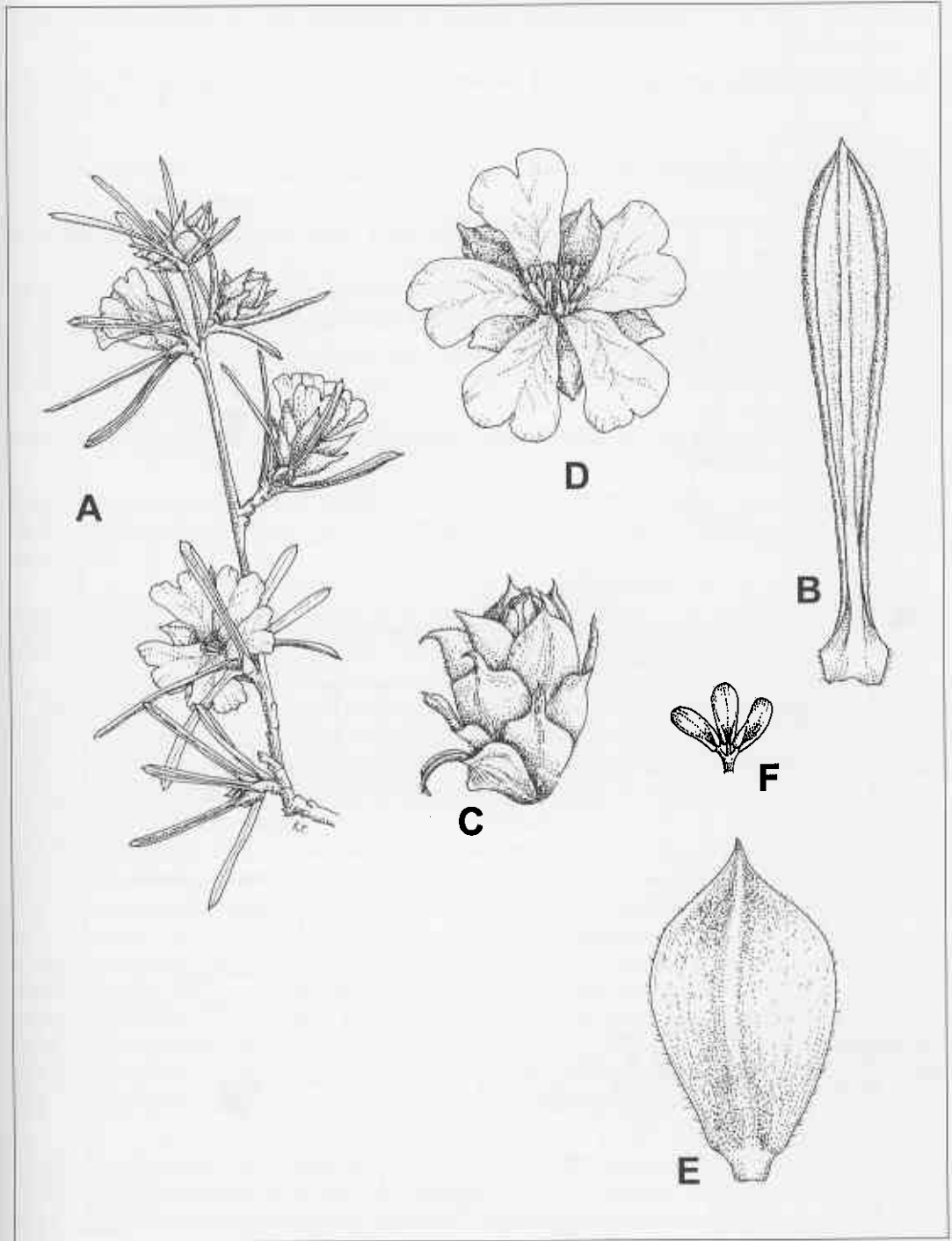


Figure 1. *Hibbertia glabrisepala*, drawn from *A. & B. Bellairs* 1300 and *J.R. Wheeler* 2378. A – flowering branch (x2); B – lower surface of leaf (x8); C – bracts surrounding immature flower (x4); D – flower (x4); E – inner sepal (x8); F – staminal bundle (x8).

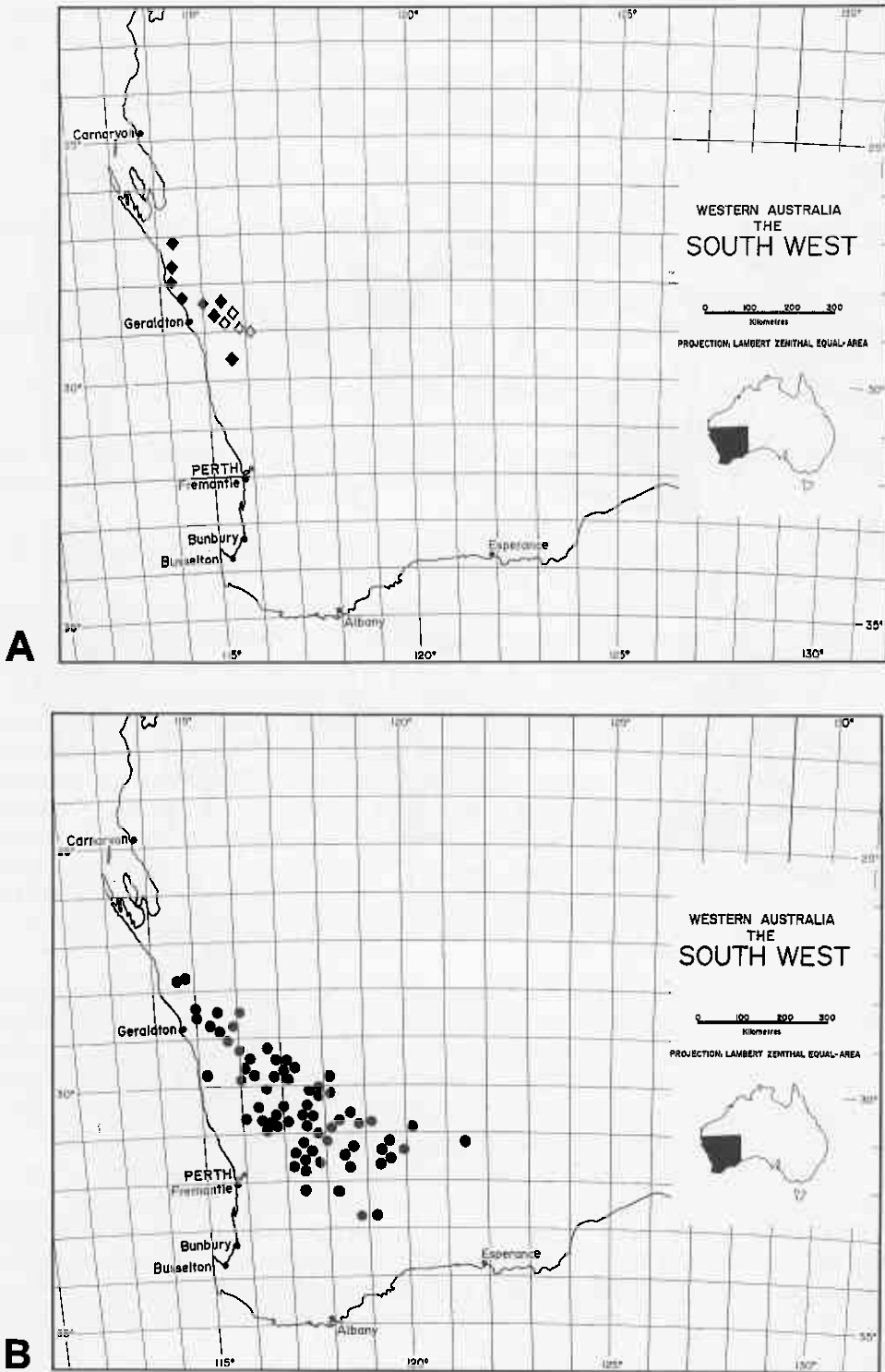


Figure 2. Distribution maps. A – *Hibbertia glabrisepala* ◆ and *H. glomerosa* var. *bistrata* ◇; B – *H. glomerosa* var. *glomerosa*.

*Habitat.* Occurs on sandy soils, recorded from heath or mallee vegetation.

*Phenology.* Flowering is recorded from May to October. Fruits have been recorded for September and October.

*Conservation status.* The species appears to be fairly widespread and is not believed to be under threat.

*Etymology.* The specific epithet refers to the almost glabrous sepals.

*Affinities.* Differs from its close relative *Hibbertia glomerosa* in the absence of the long coarse hairs on its calyx, its more conspicuous broad bracts surrounding the flower and in its reduced stamen number. Each of the five stamen fascicles always has 3 anthers only, making a total of 15 stamens per flower, whereas there are (20)25–38 stamens with 4–8 anthers per fascicle in *H. glomerosa*.

*Note.* Previously known in PERTH by the phrase name *Hibbertia* sp. Red Bluff (J.R. Wheeler 2376).

***Hibbertia glomerosa*** (Benth.) F. Muell., Syst. Census Austral. Pl. 2 (1882). – *Candollea glomerosa* Benth., Fl. Austral. 1: 43 (1863). *Type:* Swan River [Western Australia], *Drummond* p.p. (*lecto:* K, here designated).

*Hibbertia polyclada* Diels in L. Diels & E. Pritzel, Bot. Jahrb. Syst. 35: 385 (1904). *Type:* Avon District, near Wyola, Western Australia, 24 October 1901, L. Diels 5035 (*iso:* PERTH 04430603).

*Shrub*, mostly to 0.6 m, rarely to 1 m high; young branchlets of flowering shoots sericeous, otherwise glabrous, usually scarred by fallen leaves. *Leaves* linear to narrowly oblong, 7–25(35) mm long and 1–3(4.5) mm wide, glabrous to hairy; base usually dilated and slightly stem-clasping, the margin ciliate; apex more or less obtuse, often with a minute blunt point extending from the midrib. *Flowers* terminating short shoots, single or in few-flowered clusters, sessile, 10–25 mm across; bracts few, usually 1–3, 4–12 mm long, either ovate to elliptic and bract-like or leaf-like and scarcely differing from the uppermost leaves, often ciliate towards the base. *Sepals* connate basally, ovate to elliptic, 6–12 mm long; with conspicuous coarse white pilose hairs particularly in the mid-section, the tips and base often glabrous, sometimes with an underlying indumentum of shorter hairs; outer sepals tapered upwards and acute; inner sepals broader and more obtuse but apiculate, with membranous margins, often appearing almost glabrous but usually minutely ciliate. *Petals* bright yellow, obovate, 7–14 mm long, emarginate. *Stamens* (20)25–38, in 5 fascicles each of 4–8 stamens in an irregular cluster; filaments fused in the lower half; anthers narrowly oblong and dehiscent by longitudinal slits. *Carpels* 5, globular, glabrous, each with an erect to radiating style; ovule 1 per carpel. *Fruiting carpels* obovoid, 2.5–3 mm long, c. 2 mm wide; seed brown, globular, 1–2 mm diam., with a small white waxy aril.

*Typification.* Bentham (1863) cited two syntypes, Swan River, *Drummond* and Port Gregory, *Oldfield*, which are morphologically quite distinct, belonging to different species. The *Drummond* specimen is lectotypified because it agrees best with Bentham's original description in having four or more stamens in each staminal bundle. It also agrees best with current concepts of *Hibbertia glomerosa*, which is a taxon with a conspicuously pilose calyx. The excluded syntype has fewer stamens and is almost devoid of calyx hairs. It belongs to the new species described above.

*Notes.* *Hibbertia polyclada* was described by Diels (Diels & Pritzel 1904) from material he collected at Wyola, a railway siding between Northam and Merredin in the Avon district. It has slightly shorter leaves

than the type of *Hibbertia glomerosa*, but not unusually short when seen in the light of the material now available. It is here considered to be a synonym of *Hibbertia glomerosa*.

Two varieties are recognised in *Hibbertia glomerosa*. The new variety, var. *bistrata*, is confined to a small area within the range of the much more widespread typical variety, but there are no records of the two taxa coexisting at any localities.

**a. *Hibbertia glomerosa* var. *bistrata* J.R. Wheeler, var. nov.**

*Hibbertiae glomerosae* var. *glomerosae* affinis sed foliis bracteisque pubescentibus, indumento sepalorum brevi aliquantum coacto pilos albos conspicuos subjecti differt.

*Typus*: c. 10 miles [16 km] SE of Mullewa along road to Morawa, 28°37'S, 115°38'E, Western Australia, 21 September 1971, R.D. Hoogland 11999 (*holo*: PERTH 03073688; *iso*: A, CANB, L, NSW all *n.v.*).

*Leaves* with a somewhat felted indumentum of sparse to dense hairs which are appressed and usually curled or tangled, densest on the lower surface, ciliolate towards base. *Bracts* densely shortly hairy with curled or tangled hairs, ciliolate towards base. *Sepals* with a short somewhat felted indumentum which is often ferruginous, underlying conspicuous white pilose hairs. (Figure 3A–C)

*Other specimens examined* (all PERTH). WESTERN AUSTRALIA: between Mullewa and Morawa, 22 Sep. 1931, W.E. Blackall 729; between Mullewa and Morawa, 24 Sep. 1932, W.E. Blackall 2789; between Mullewa and Morawa, 22 Sep. 1931, C.A. Gardner & W.E. Blackall 729; 45 miles [72 km] along Mullewa–Morawa road, 6 Oct. 1984, A.C. Burns 9; Canna, 18 Sep. 1931, C.A. Gardner 2663; Wilroy Reserve 26196, 16 km SSE of Mullewa, 25 Sep. 1976, B.G. Muir 287(3.53).

*Distribution*. Western Australia, South West Botanical Province, IBRA region (Thackway & Cresswell 1995) of Avon Wheatbelt, apparently restricted to between Mullewa and Morawa. (Figure 2A)

*Habitat*. Recorded from sand, sandy loam and granitic soils in shrubland or heath.

*Phenology*. Flowers recorded for September and October; immature fruits for October.

*Conservation status*. Conservation Codes for Western Australian Flora: Priority Three. Apparently restricted to a few populations, although one collection indicates that the taxon is locally common and one is included in a reserve.

*Etymology*. The name refers to the 2-layered effect of sepal indumentum.

*Affinities*. *Hibbertia glomerosa* var. *bistrata* differs from var. *glomerosa* in having short curled hairs on its leaves and bracts, and also in having similar short hairs on its sepals underlying the long strong pilose hairs which are characteristic of the sepals of both varieties of *H. glomerosa*.

**b. *Hibbertia glomerosa* (Benth.) Muell. var. *glomerosa***

*Leaves* glabrous apart from very sparse and very minute straight appressed hairs on the upper surface near the base and a minutely ciliolate margin towards the base. *Bracts* glabrous apart from a ciliolate

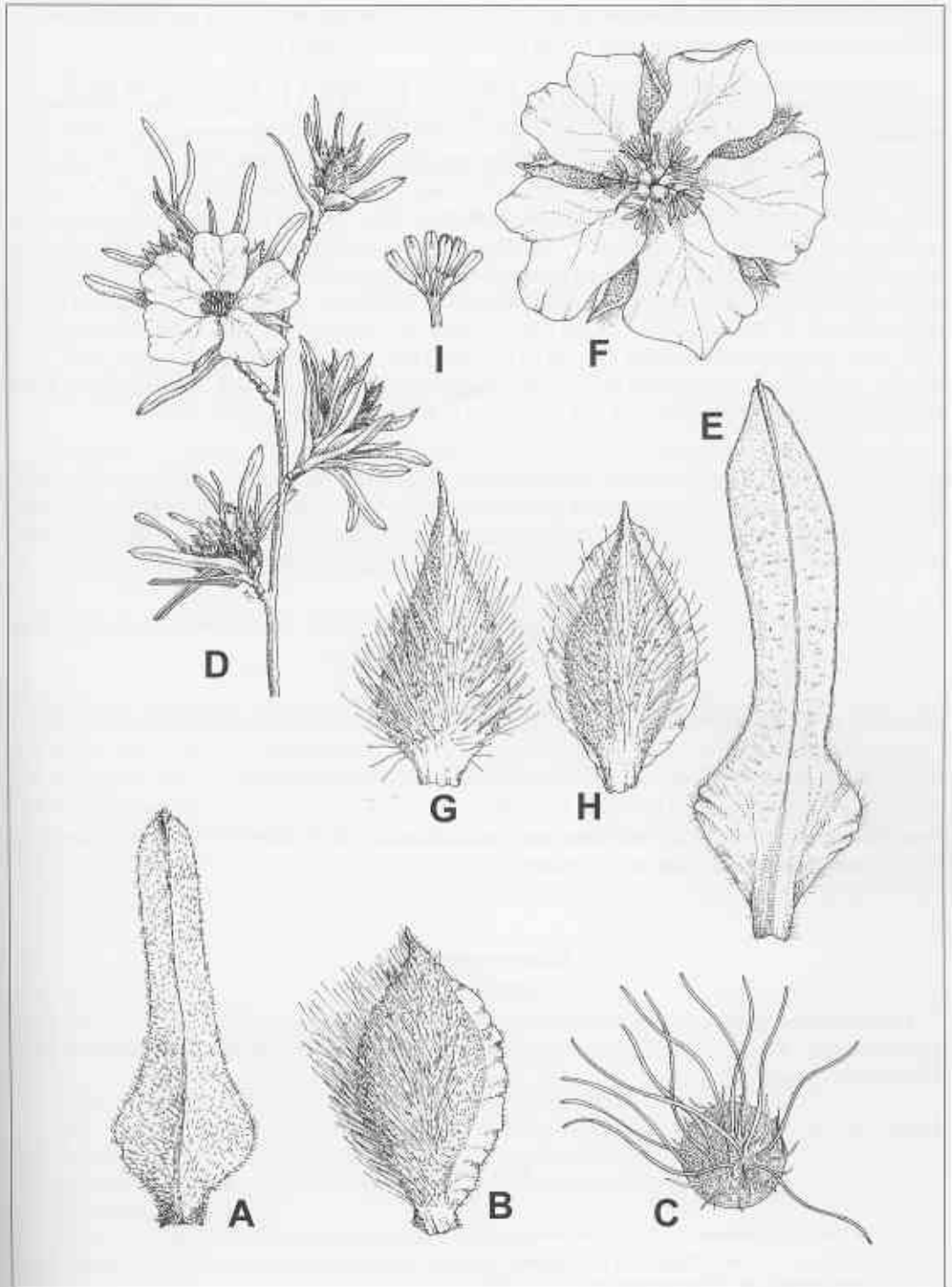


Figure 3. A–C. *Hibbertia glomerosa* var. *bistrata*, drawn from A.C. Burns 9. A – leaf (x8); B – inner sepal (x8); C – sepal hairs (x20); D–I. *Hibbertia glomerosa* var. *glomerosa*, drawn from P.S. Short 3852 and J.R. Wheeler 2587. D – flowering branch (x2); E – lower surface of leaf (x8); F – flower (x4); G – outer sepal (x8); H – inner sepal (x8); I – staminal bundle (x8).

margin. *Sepals* with conspicuous pilose hairs particularly in the mid-section, the tips and base usually glabrous or sometimes also with very sparse minute appressed straight hairs. (Figure 3D–I)

*Selected specimens examined* (all PERTH). WESTERN AUSTRALIA: Great Northern Highway at roadside, 70.0 km c. NE of Wubin, 22 Sep. 1985, *J. D'Alonzo* 494; near Narembeen, Sep. 1929, *W.E. Blackalls* n.s.; Caroling Rocks, 4 km W of Karalee homestead on water pipeline, 141 km W of Coolgardie and 57 km E of Southern Cross, 6 Oct. 1983, *S.J. Forbes* 1487 (duplicates MEL, AD all n.v.); 25.26 km E of Mullewa, near Pindar, 6 June 1991, *W. Greuter* 22589; c. 9 miles [14.5 km] N of Campion, near vermin proof fence, 30 Sep. 1971, *R.D. Hoogland* 12044 (duplicates CANB, E, L, MEL all n.v.); rubbish tip area 7 km W of Perenjori on S side of road, 18 Aug. 1994, *E.D. Kabay* 351; 13 miles [21 km] N of Lake Bidy, 12 Oct. 1963, *K.R. Newbey* 1043; Mt Walter, c. 90 km NE of Southern Cross, 16 Sep. 1981, *K.R. Newbey* 8924; c. 10 km NW of Pintharuka, 20 Sep. 1990, *P. S. Short* 3852 (duplicate MEL n.v.); 14 km E of Piawaning on road to Wongan Hills, 16 Sep. 1988, *J.R. Wheeler* 2530; N of Beacon, 16 km along Bimbijy Rd towards Mt Churchman, 20 Sep. 1988, *J.R. Wheeler* 2587; Avon district, c. 35 km N of Merredin, 31 Oct. 1974, *D.J.E. Whibley* 4724 (duplicate AD n.v.).

*Distribution.* South-west Australia, IBRA regions (Thackway & Cresswell 1995) of Geraldton Sandplains, Avon Wheatbelt and Mallee from the South West Botanical Province and Murchison and Coolgardie from the Eremaean Botanical Province, extending from the Murchison River south to near Newdegate and inland towards Mt Jackson and south of Coolgardie. (Figure 2B)

*Habitat.* Found in sand, loam or clay soils over laterite or granite in shrubland, heath or mallee vegetation.

*Phenology.* Flowers recorded from July to November; fruits recorded from September to November.

*Conservation status.* Widespread, not believed to be currently under threat.

*Note.* The leaves are usually up to 25 mm long, but a collection (*B.H. Smith* 1331) from Tampu Well in the Avon District has leaves to 35 mm long.

### Acknowledgements

I should like to thank the Director and staff of the Western Australian Herbarium for access to the State collection. Thanks also to Kathleen Trafalski for preparing the fine illustrations and Paul Wilson for the Latin diagnoses.

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