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Miscellaneous new *Hibbertia* species (Dilleniaceae) from the south coast and adjacent interior of Western Australia

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Abstract

Wheeler, J.R. Miscellaneous new *Hibbertia* species (Dilleniaceae) from the south coast and adjacent interior of Western Australia. *Nuytsia* 15(2): 299–310 (2004). Five new species of *Hibbertia* Andr. are formally described. *Hibbertia oligantha* J.R. Wheeler, *Hibbertia pachyphylla* J.R. Wheeler, *Hibbertia papillata* J.R. Wheeler, *Hibbertia psilocarpa* J.R. Wheeler and *Hibbertia turleyana* J.R. Wheeler all from the south coast area of the South-West Botanical Province (Esperance Plains region and Mallee region) with two species extending to the southern Eremaean Province (Coolgardie region). All species are mapped and the three having conservation priority are illustrated.

Introduction

This is one of a series of papers updating the taxonomic knowledge of the genus *Hibbertia* Andr. Following detailed examination of the PERTH collections of *Hibbertia* several new taxa were circumscribed. This paper follows a previous one dealing with a miscellany of taxa from the wheatbelt and pastoral areas of the state (Wheeler 2002) and validates new names from the south coast and adjacent interior. The species are all characterised by having unilateral stamens and belong to either section *Pleurandra* (Labill.) Benth. which typically lack staminodes, or to section *Hemipleurandra* Benth., typically with staminodes (Bentham 1863).

Three of the new species, *Hibbertia pachyphylla*, *Hibbertia papillata* and *Hibbertia turleyana* are currently included on the Department of Conservation and Land Management list of species with conservation priority, being restricted in distribution and in need of further surveying. The response from all of the species to attack by *Phytophthora* remains to be documented.

Taxonomy

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

Hibbertiae andrewsianae affinis sed folliis longis saepe aliquantum acutis costa ut in acumen obtusum extensa, floribus sessilibus vel subsessilibus, flore cum bracteo lineari instructo.

Typus: railway reserve, 100 metres N of Speddingup East Rd, Western Australia, 33 30' S, 121 46' E, 15 October 1984, S. Wheeler 3 (*holo*: PERTH 03033848; *iso*: AD, CANB, K, MEL).

Shrub to 0.5 m high; branchlets usually puberulous. *Leaves* spirally arranged, erect to spreading, often slightly recurved towards the tip, subsessile to shortly petiolate, somewhat glaucous, linear, 3.5–15 mm long, 0.6–1 mm wide, upper surface smooth to slightly tuberculate, glabrous to hairy with short forward pointing simple to semi-stellate hairs, thick, with the leaf margin recurved to a level or very slightly protruding midrib, the new apparent margin rounded, apex obtuse to acute with a blunt mucro. *Flowers* solitary, terminating axillary shoots, sessile to subsessile, often sparse; *bract* below flower leaf-like or hidden amongst the upper leaves, linear, *c.* 1.5 mm long, acute. *Sepals* 5, elliptic, 4.5–6 mm long, mostly glabrous, midrib not prominent; outer sepals acute, occasionally with 1 or 2 hairs at the apex; inner sepals slightly broader, sub-acute to obtuse. *Petals* 5, yellow, obovate, 4–7.5 mm long, emarginate. *Stamens* 6–10, all on one side of the carpels, fused only basally, usually equal in length; filament 0.5–1.5 mm long; anther oblong, 1.5–2 mm long, obtuse, dehiscing by longitudinal slits. *Staminodes* absent. *Carpels* 2, globular, glabrous; style divergent, *c.* 3 mm long. *Ovules* 2 per carpel. *Fruiting carpels* not seen.

Other specimens examined (all PERTH). WESTERN AUSTRALIA: N of Gibson Soak, 5 Nov. 1962, J.S. Beard 2332; Truslove, between Salmon Gums and Esperance, 15 Oct. 1931, W.E. Blackall 1038; Esperance–Kalgoorlie 547 mile peg, 13 Jan. 1972, H. Demarz D3640; *c.* 7 miles [11 km] S of Grass Patch along Norseman–Esperance highway, 2 Oct. 1971, R.D. Hoogland 12051 (duplicates CANB, HBG, K, L, UC, US, all *n.v.*); powerline right-of-way on the W side of Coolgardie Esperance highway at the SW corner of junction with Jenkins St, in Gibson, 26 Sep. 2001, J.W. Horn 4136 (duplicate DUKE, *n.v.*); Remnant vegetation northern boundary Loc. 1878; 21 Sep. 1998, E.M. Sandiford 137; 6 km NW of Peak Charles towards Norseman, 20 Sep. 1979, J. Taylor, M.D. Crisp & R. Jackson JT697; 20 km N of Esperance and 8.5 km E on Blumanns Rd on north side of road, 26 Sep. 2001, J.R. Wheeler 4114; 20 km N of Esperance, Blumanns Rd, 1.2 km S of right angle bend on Blumanns Rd, 26 Sep. 2001, J.R. Wheeler 4119; tributary of Young River, *c.* 80 km W of Esperance, 28 Sep. 1968, P.G. Wilson 8049.

Distribution. Western Australia, South West Botanical Province, IBRA regions (Thackway & Cresswell 1995) of Esperance and Mallee. Recorded between Peak Charles, the South Coast west of Esperance and just north of Esperance. (Figure 1A).

Habitat. Recorded from sandy soil in heath.

Phenology. Flowers mostly September–November.

Conservation status. Poorly known, but not currently believed to be under immediate threat.

Etymology. From the Greek *oligos* – few, small, little and *anthos* – flowers, referring to the relatively few flowers on many specimens.

Affinities. Probably most closely related to *Hibbertia andrewsiana* Diels, differing however in its longer leaves, often somewhat acute and with the midrib extended as a blunt point and also in its sessile to subsessile flowers each with a narrower linear bract.

Differs from *Hibbertia psilocarpa* in the less swollen midrib of the lower surface of the leaves; its bracts, which are narrow, leaf-like and acute; its sepals which are more acute and often with a few hairs

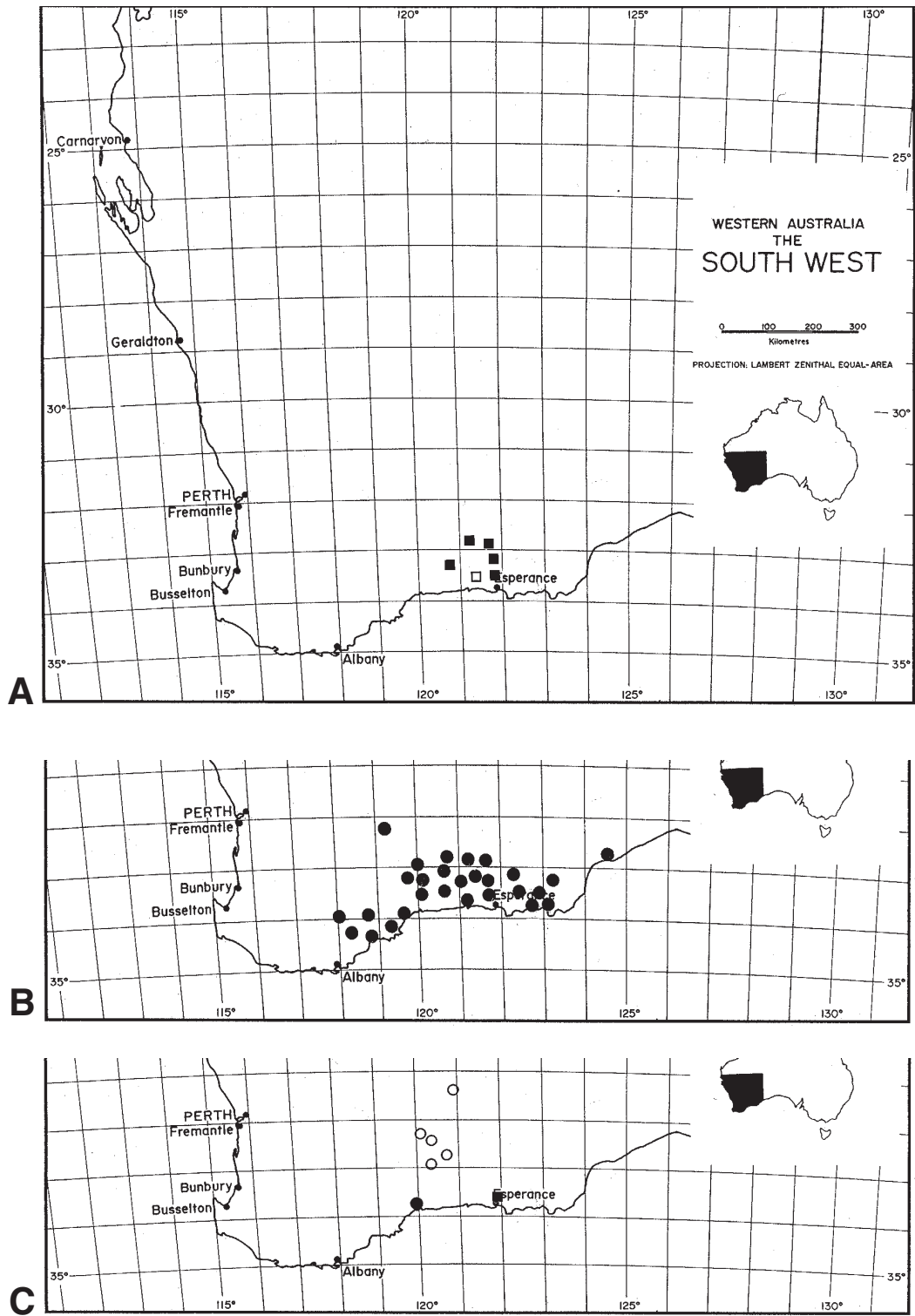


Figure 1. A. *Hibbertia oligantha* ■, intermediate between *Hibbertia oligantha* and *Hibbertia psilocarpa* □. B. *Hibbertia psilocarpa* ●. C. *Hibbertia pachyphylla* ○, *Hibbertia papillata* ●, and *Hibbertia turleyana* ■.

at the apex; the number of ovules per carpel. The hairs of the hairy variant of *Hibbertia oligantha* are quite different from those of the hairy variant of *Hibbertia psilocarpa* being antrorsely directed.

Note. Several specimens from the Gibson-Truslove area (*R.D. Hoogland* 12051, *W.E. Blackall* 1038) are distinctly hairy, the upper leaf surface more tuberculate than usual and the apex a little recurved. The sepals also have minute appressed simple hairs on their upper half. Otherwise these specimens appear to fit with the remainder of the collections.

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

Quoad dispositionem staminum et staminodiorum *H. charlesii* accedit, sed ab ea differt foliis brevioribus et latoribus, costa minus tumida, et sepalis parvioribus pilis magis appressis.

Typus: 305 mile peg on Norseman–Hyden road, Western Australia, 7 September 1973, *E.C. Nelson* 17331 (*holo:* PERTH 04435338; *iso:* CANB)

Shrub to 0.5 m high; branchlets with glabrous ridges below the leaf bases, usually with an indumentum of tiny curled hairs but glabrescent. *Leaves* spirally arranged, greatly spreading to reflexed, sessile to subsessile, varying from broadly oblong-elliptic to narrowly oblong, 2–6(11) mm long, 1.5–2.2 mm wide, very thick to sub-terete, the leaf margin tightly recurved to the midrib, the midrib hidden or level with the recurved margin, lower surface (1)2-grooved, upper surface smooth to distinctly tuberculate but glabrous apart from young leaves which may have curled hairs at least at their base, apex somewhat recurved and obtuse but pungent with a straight but downturned mucro. *Flowers* solitary, terminating short shoots, usually sessile, 10–12 mm diam.; *bracts* below flower narrowly triangular, 1–3 mm long, acute, with grey to brown curled hairs. *Sepals* 5, elliptic, 5–6(7) mm long, with grey to brown somewhat appressed and mostly straight simple hairs, midrib not prominent, usually obtuse; outer sepals *c.* 3 mm wide; inner sepals 4–5(6) mm wide with thinner broad glabrous margins. *Petals* 5, yellow, obovate, 6–9 mm long, deeply emarginate. *Stamens* 5, all on one side of the carpels and basally fused, usually equal in length; filament *c.* 0.5 mm long; anther narrowly oblong, 2–3 mm long, obtuse, dehiscent by longitudinal slits. *Staminodes* 5–7 outside of the stamens, occasionally up to 11 and both outside and each side of the stamens, elliptic, 1.5–2 mm long. *Carpels* 2, globular, densely white-hairy; style erect, *c.* 1.5 mm long. *Ovules* 4(5) per carpel. *Fruiting carpels* not seen mature. (Figure 2A–C).

Other specimens examined (all PERTH). WESTERN AUSTRALIA: 33 km E of Forrestania crossroads *c.* 118 km E of Hyden on Hyden–Norseman road, 17 Oct. 1984, *J.M. Brown* 210; SW of Queen Victoria Rocks, 17 Sep. 1966, *A.S. George* 8047 (duplicate AD); 51.2 km E of Forrestania crossroads on Hyden–Norseman road, 4 Nov. 1988, *T.D. Macfarlane* 1856; 20 km SW of Round Top Hill, *c.* 140 km W of Norseman, 3 Nov. 1979, *K.R. Newbey* 6249; 2 km NW of 90 mile tank, Norseman–Lake King road, 12 Nov. 1979, *K.R. Newbey* 6492; 42 km NE of Swallow Rock, Frank Hann National Park, *c.* 83 km NE of Lake King, 1 Aug. 1980, *K.R. Newbey* 6841.

Distribution. Western Australia, South West Botanical Province, IBRA region of Mallee and also the Eremaean Province, IBRA region of Coolgardie. Scattered localities only between Queen Victoria Rocks and Frank Hann National Park. (Figure 1C).

Habitat. Occurs on sand in open mallee woodland, or scrub with scattered shrubs and *Triodia* species.

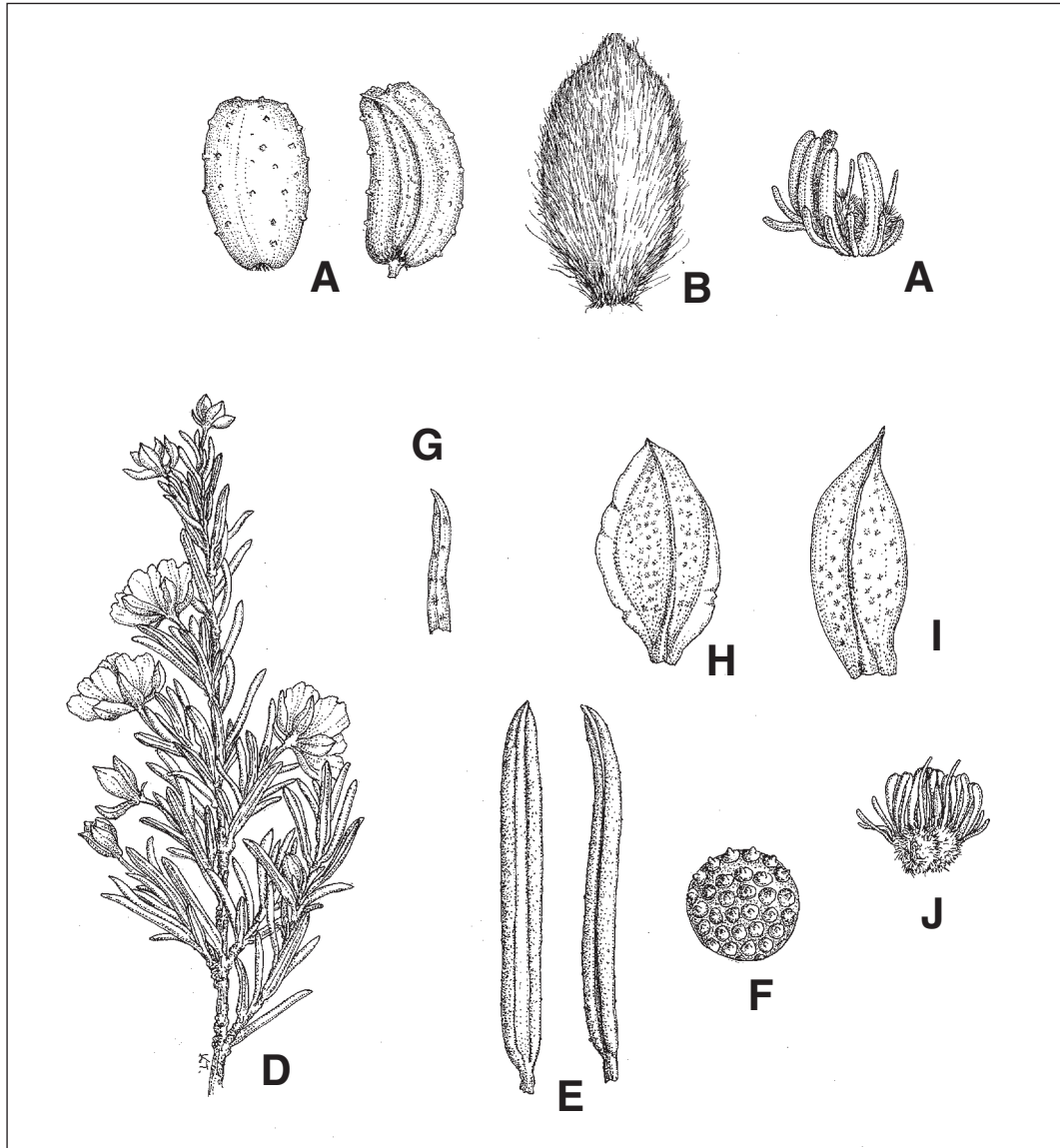


Figure 2. A–C *Hibbertia pachyphylla*, drawn from *E.C. Nelson* 17331. A– leaf, both surfaces (x8); B– sepal (x8); C– stamens, staminodes and carpels. D–J *Hibbertia papillata*, drawn from *K.R. Newbey* 111100 and *J.R. Wheeler* 4099. D– flowering branch (x2), E– leaf, both surfaces (x8), F– detail of leaf surface (x20), G– bract (x8), H– inner sepal (x8), I– outer sepal (x8), J– stamens and carpels (x8).

Phenology. Flowers recorded September–November.

Conservation status. Conservation Codes for Western Australian Flora: Priority Three, with need for further survey work.

Etymology. From the Greek *pachy* – thick and *phylla* – leaf, referring to the thick and often quite short leaves of the species.

Affinities. *Hibbertia pachyphylla* is a somewhat variable taxon, apparently related to *H. charlesii* J.R. Wheeler which has the same number of stamens and also several staminodes occurring outside of the stamens. This unusual arrangement of stamens and staminodes and the subsequent difficulty in placing such taxa within the current sectional framework of the genus has already been noted for *H. charlesii* (Wheeler 2000). *Hibbertia charlesii*, which is recorded only from granitic soils of Peak Charles, differs from *H. pachyphylla* in its much longer linear leaves with an enlarged midrib and its longer, distinctly mucronate sepals.

Some of the collections (*E.C. Nelson* 17331, *K.R. Newbey* 6249, *T.D. Macfarlane* 1856) are similar in appearance to *Hibbertia microphylla* Steud. with similarly shaped thick leaves. They differ, however in indumentum, pungent leaf apex, absence of peduncle, sepal shape and indumentum, stamen number and ovule number.

Notes. The available collections show considerable variation in their leaves. The leaves are commonly broadly oblong to broadly elliptic, but several are longer and narrowly oblong in shape (*J.M. Brown* 210, *K.R. Newbey* 6841). Some collections have the leaf margins recurved to such an extent that there is only a single groove on the apparent lower leaf surface (*A.S. George* 8047, *K.R. Newbey* 6841). A collection from Frank Hann National Park (*K.R. Newbey* 6841) has sub-terete leaves rather than somewhat flattened leaves with only a hint of a single groove. The most northerly collection from Queen Victoria Rocks (*A.S. George* 8047) is unusual in having up to 11 staminodes, occurring both outside and to each side of the fertile stamens. The sepals are usually obtuse, but the outer sepals are occasionally sub-acute (*A.S. George* 8047, *K.R. Newbey* 6841). One collection (*J.M. Brown* 210) has subsessile rather than sessile flowers. Additional future collections, may shed more light on these differences and may allow circumscription of infraspecific taxa.

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

Hibbertia lineata et *H. recurvifolia* affinis sed pagina superiore folii minute papillosa, foliis margine rotundatis, pilis carentibus ab apice foliorum, et costa folii minus prominenti.

Typus: Fitzgerald River National Park, SE slopes of East Mt Barren, Western Australia, 33 55' S, 120 0' E, 23 September, 1986, *J.R. Wheeler* 2428 (*holo:* PERTH 03034275; *iso:* AD, CANB, K, MEL, NSW)

Shrub to 0.5 m high; branchlets minutely stellate-hairy. *Leaves* spirally arranged, often spreading and usually slightly recurved towards the leaf apex; petiole 0.5–1 mm long, densely minutely stellate-hairy; blade linear but thick with the margins revolute to the midrib, 6–11 mm long, c. 1 mm wide, upper surface glabrous apart from numerous minute papillae, the apparent leaf margin rounded, lower surface usually hidden but having dense white stellate hairs, midrib glabrous and not swollen, apex obtuse with a short blunt mucro. *Flowers* solitary, axillary, 10–12 mm diam., pedunculate; *peduncle* 3–7 mm long, with minute sparse stellate hairs; *bract* immediately below flower linear to subulate, 1.5–6 mm long, with minute sparse stellate hairs, acute; bracts at base of peduncle similar. *Sepals* 5, elliptic, 3.5–6 mm long and 2–2.5 mm wide, midrib fairly prominent, outer surface with minute sparse stellate hairs, the inner surface sparsely woolly towards apex, sub-acute to acute; inner sepals more obtuse and slightly broader than the outer sepals, the margin thinner and more or less glabrous. *Petals* 5, yellow, obovate, 4.5–7.5 mm long, emarginate. *Stamens* 8–10, all on one side of the carpels and basally fused, usually equal in length; filament 1–1.5 mm long; anther oblong, 1–1.5 mm long, obtuse, dehiscent by longitudinal slits. *Staminodes* 3 or 4 on each side of the stamens and occasionally 1 or 2 continued behind

the stamens, linear to narrowly elliptic, 0.5-1 mm long. *Carpels* 2, globular, densely stellate-hairy; style more or less erect, 1.5–2 mm long. *Ovules* 2 per carpel. *Fruitlets* not seen mature, immature fruitlets obovoid and c. 2 mm high and c. 1.5 mm wide. (Figure 2D-J).

Other specimens examined (all PERTH). WESTERN AUSTRALIA: Eyre Range, 2 Nov. 1965, A.S. George 7262; SE slope of East Mt Barren, 7 Oct. 1971, R.D. Hoogland 12079 (duplicates BR, CANB, K, L, UC, US, all *n.v.*); S facing slope of East Mt Barren, Fitzgerald River National Park, 29 Sep. 1999, J.W. Horn 2676 with R. Butcher (duplicate DUKE, *n.v.*); on S side of East Mt Barren, 1 Oct. 1970, B.R. Maslin 905; on S side of East Mt Barren, 1 Oct. 1970, B.R. Maslin 905a (duplicate CANB *n.v.*); no locality, 3 Sep. 1986, K.R. Newbey 11110; Fitzgerald River National Park, lower slopes of East Mt Barren, 22 Sep. 1986, J.R. Wheeler 2426 (duplicates CANB, MEL); Fitzgerald River National Park, SW slopes of East Mt Barren, 300 m up walk track to the summit, 8 Sep. 2001, J.R. Wheeler 4099 (duplicates AD, BRI, CANB); East Mt Barren, c. 8 km W of Hopetoun, 4 Oct. 1966, P.G. Wilson 5447; East Mt Barren, 4 Oct. 1966, P.G. Wilson 5469 (duplicate K).

Distribution. Western Australia, South West Botanical Province, IBRA region of Esperance Plains. Recorded from the Eyre Range and East Mt Barren only. (Figure 1C).

Habitat. Recorded from low heath on quartzite ridges, with *Regelia velutina*, *Hakea victoriae*, *Pimelea physodes* and *Banksia* species.

Phenology. Flowers recorded for September to November.

Conservation status. Conservation Codes for Western Australian Flora: Priority Two. Restricted in distribution, known only from two populations but from within a National Park.

Etymology. From the Latin *papillatus* – having papillae, referring to the minute papillae on the upper surface of the leaves.

Affinities. *Hibbertia papillata*, with stamens all on one side of 2 carpels and the presence of staminodes, belongs in section *Hemipleurandra* Benth. It is probably most closely related to *Hibbertia recurvifolia* Benth. and *Hibbertia lineata* Steud., but differs in leaf shape, the texture of the leaf surface and absence of apical hairs at the leaf apex as well as having shorter peduncles. *Hibbertia recurvifolia* and *H. lineata* both have usually slightly broader and slightly flattened thick leaves with somewhat scabrous apparent margins recurved to a more swollen midrib. Their leaves have a somewhat recurved apex, often with a few straight apical hairs.

Note. Previously known by the phrase name *Hibbertia* sp. papillose leaves (K.R. Newbey 11110).

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

Hibbertiae oliganthae affinis sed costa folii tumida, floribus plus numerosis, bracteis ovatis et obtusis, ovulis 3-8 per carpellum differt.

Typus: Ravensthorpe–Hopetoun road, Western Australia, 33 45' S, 120 4' E, 22 September 1986, J.R. Wheeler 2422 (*holo:* PERTH 03033457; *iso:* AD, K)

Shrub to 0.7(1) m high, often somewhat glaucous; branchlets glabrous or puberulous. *Leaves* spirally arranged, antrorsely directed and often somewhat incurved, subsessile to shortly petiolate (petiole to 0.8 mm long), narrowly oblong to linear, (1.5)3–11 mm long, 0.6–1.2 mm wide, thick to almost semi-terete with the margin revolute to a swollen and protruding midrib, the new apparent margin rounded, glabrous or puberulous with short erect hairs, apex obtuse. *Flowers* solitary, axillary or terminating short shoots, (8)10–12 mm diam., sessile to pedunculate with peduncles up to 10 mm long. *Bracts* several below the flower in sessile flowers or at the base of the peduncle, or frequently scattered up the peduncle, narrowly ovate to ovate, 0.5–1 mm long, often ciliolate, acute to obtuse. *Sepals* 5, elliptic, 4–7 mm long, glabrous, midrib not prominent; outer sepals narrower and obtuse to acute; inner sepals broader and obtuse. *Petals* 5, yellow, obovate, 4.5–7 mm long, very shallowly emarginate to more or less obtuse. *Stamens* 4–8(10), all on one side of the carpels and scarcely basally fused, often variable in length within each flower; filament 1–2 mm long; anther narrowly oblong to oblong, 1.5–3 mm long, obtuse, dehiscing by longitudinal slits. *Staminodes* absent, but occasionally one of the stamens may be malformed. *Carpels* 2, obovoid, glabrous; style more or less erect, 2–3 mm long. *Ovules* (3)4–6(8) per carpel. *Fruiting carpels* not seen mature.

Other specimens examined (all PERTH). WESTERN AUSTRALIA: 7 miles [11 km] SW of Mt Ragged, 19 Oct. 1970, *T.E.H. Aplin* 4303; 24.3 km due SSE of Peak Eleanor, 7.96 km N of Rolland Rd on Fields Rd, 28 Sep. 1984, *M.A. Burgman* 3823; 19.5 km due SE of Muckinwobert Rock, 4.5 km W of West Point Rd on Rawlinson Rd, 1 Oct. 1984, *M.A. Burgman* 4028; 114 km S of Balladonia, 19 Aug. 1995, *R.J. Cranfield* 10144; along Ravensthorpe–Esperance road, c. 4 miles [6.5 km] W of Lort River, 5 Oct. 1971, *R.D. Hoogland* 12074; Kumarl, between Norseman and Esperance, Aug. 1938, *L.A. Horbury* 74; 31 km ENE of Lake King, Frank Hann National Park, 31 July 1980, *K.R. Newbey* 6819; 73 km E of Jerramungup on Jerramungup–Ravensthorpe road, 6 Aug. 1974, *G. Perry* 130; 22.5 km E of Mt Madden crossroads, next to Location 2818, (E of Lake King), 7 Aug. 1968, *R.A. Saffrey* 301; Fitzgerald River National Park, Pabelup Drive, 11.6 km NW of junction with Point Ann Rd, 8 Sep. 2001, *J.R. Wheeler* 4095.

Distribution. Western Australia, South West Botanical Province, IBRA regions of Esperance and Mallee and also Eremaean Province, IBRA region of Coolgardie. Apparently widespread from north of Hyden to Fitzgerald River National Park extending west to Ongerup and east to Israelite Bay. (Figure 1B).

Habitat. Grows most commonly on sandy, clayey or gravelly soils, from a variety of habitats, heath, shrubland and mallee, but also from paperbark or yate swamps.

Phenology. Flowers recorded May to November, but most commonly flowering July to October.

Conservation status. Widespread, not considered under threat.

Etymology. From the Greek *psilos* – bare, stripped of hairs, smooth and *carpos* –fruit, referring to the prominent glabrous carpels.

Affinities. Differs from *Hibbertia oligantha* in having a more swollen midrib on the lower leaf surface. The hairs of the hairy variant are very short and erect (at right angles to the leaf surface). There are 3 or 4 bracts at the base of the flower or scattered up the peduncle, which are ovate, ciliolate and obtuse unlike those of *H. oligantha* which are linear, leaf-like and more or less acute. The sepals are usually more obtuse than those of *H. oligantha*. *Hibbertia psilocarpa* also differs in having 3–8 ovules per carpel, but most commonly 4 or 5.

Differs from *Hibbertia gracilipes* Benth., with which it has sometimes been confused, in its dull and often somewhat glaucous obtuse leaves, usually fewer stamens with larger and obtuse anthers, glabrous carpels with more numerous ovules and longer styles. *Hibbertia gracilipes* has shiny leaves with the midrib extending very slightly as a blunt point, 10–12 stamens with anthers up to 1.5 mm long and distinctly apiculate, hairy or partially hairy carpels with styles usually only 1–1.5 mm long.

Notes. Previously known by the phrase name *Hibbertia* sp. Esperance (A. Burgman 1055 & S. McNee). A variable species varying in the presence or absence of puberulous indumentum and also between sessile and long-pedunculate flowers. There appears to be a gradual gradation between the glabrous variant and the puberulous variant which does not allow for easy separation into two subspecific taxa. The long-pedunculate variants seem to occur most commonly in the glabrous variants. The species is also variable as to stamen number, 4–10 and to ovule number, 3–8 but most commonly 4 ovules per carpel.

A few specimens (*A.E. Orchard* 1540 and 1544 from Stokes Inlet, also *H.D. Hoogland* 12069 and *J.R. Wheeler* 4120 and 4121 from just east of Stokes Inlet) appear to be intermediate between *H. oligantha* and *H. psilocarpa*. (Figure 1A).

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

Hibbertia ulicifolia affinis sed in habito, in foliis sparsioribus et minus rigidis, et in forma et indumento sepalorum differt; ab *H. hamulosa* in forma folii et in indumento sepalorum differt.

Typus: Helms Arboretum, c. 16 km N of Esperance on the Coolgardie–Esperance Hwy, Western Australia, 33 43' S, 121 49' E, 4 September 2000, *J.R. Wheeler* 4056 (*holo:* PERTH 06458092; *iso:* AD, CANB, K, MEL, NSW)

Shrub to 0.3 m high, multi-stemmed and open; branchlets glabrous or with sparse stellate hairs. *Leaves* distant, alternate to spirally arranged, occasionally in loose clusters; petiole 0.5–1 mm long, minutely stellate-hairy; blade linear, 10–25 mm long, 0.8–1.3 mm wide, thick, glabrous apart from scattered stellate hairs when young, the margin recurved to the midrib, midrib more or less level with and not greatly protruding beyond the level of the recurved leaf margin, apex a pungent mucro 0.5–1.2 mm long. *Flowers* axillary, solitary or occasionally 2 per axil, 10–15 mm diam.; *peduncle* reddish, 6–15 mm long, stellate-hairy; *bract* immediately below flower very narrowly ovate, 1–1.8(2) mm long, densely stellate-hairy, shortly pungent. *Sepals* 5, 5–6(7) mm long, outer surface stellate-hairy, inner surface minutely woolly-stellate in the upper half, midrib not prominent, apex with a short mucro up to 0.5 mm long; outer sepals ovate-elliptic, 2–3 mm wide, shortly acuminate; inner sepals broadly elliptic, 3–4 mm wide, the thinner margin glabrous and ciliolate, more or less obtuse. *Petals* bright yellow, obovate, 5–8(10) mm long, shallowly to deeply emarginate. *Stamens* (8)9 all on one side of the carpels and basally fused, usually equal in length; filament 1–1.5 mm long; anther oblong, c. 1.5 mm long, dehiscing by longitudinal slits. *Staminodes* absent. *Carpels* 2, globular, c. 1 mm diam., densely white-hairy; style erect but curved towards the tip, 1.5–2 mm long. *Ovules* 2 per carpel. *Fruiting carpels* obovoid, c. 3.5 mm long and c. 2 mm wide, stellate-hairy. *Seeds* brown, globular, c. 2 mm diam., with a white waxy basal aril. (Figure 3).

Other specimens examined (all PERTH). WESTERN AUSTRALIA: Gibson Soak, 10 Aug. 1951, *N.H. Brittan s.n.*; Gibsons Soak, 4 Sep. 1962, *C.A. Gardner* 14165; Gibson, 10 Aug. 1951, *R.D. Royce* 3589; Speddingup East Rd, 1 Aug. 1994, *C.D. Turley* 1/894; Helms Arboretum, 4 Aug. 1996,

C.D. Turley 1/198; Helms Arboretum, 17 Sep. 1999, *C.D. Turley* 11/999 (duplicate AD); cultivated plant ex Helms Arboretum 19 Sep. 1999, *C.D. Turley* 11B/999 (duplicate MEL); Helms Arboretum, 20 Sep. 2000, *C.D. Turley* 92000 (duplicates AD, K); Helms Arboretum, c. 16 km N of Esperance on the Coolgardie–Esperance Hwy, 5 Sep. 2000, *J.R. Wheeler* 4061.

Distribution. Western Australia, South West Botanical Province, IBRA region of Esperance Plains. Apparently restricted to a small area just north of Esperance. (Figure 1C).

Habitat. Recorded from sandy soil which may be seasonally inundated in banksia heath or mallee shrubland.

Phenology. Flowers recorded for August and September; fruits recorded for September.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority One. Apparently restricted to a very few populations.

Etymology. Named after Coral Turley of Esperance, wildflower enthusiast with an exceptional knowledge of the plants of the Esperance area, in appreciation of her assistance.

Affinities. *Hibbertia turleyana* clearly belongs to section *Pleurandra* and is an additional species for the *Hibbertia mucronata* group (Wheeler 2000). It is most closely related to *H. ulicifolia* (Benth.) J.R. Wheeler and *H. hamulosa* J.R. Wheeler. *Hibbertia ulicifolia* occurs nearby, but in more coastal situations east of Esperance. *Hibbertia hamulosa* occurs to the west, between Bremer Bay and Ravensthorpe.

Hibbertia turleyana differs from *H. ulicifolia* in its more sprawling open habit, its less rigid and more slender sparser foliage, also in its sepal indumentum and shape. *Hibbertia ulicifolia* is characterised by its more crowded rigid leaves spreading at right angles to the stem. The sepal indumentum of *H. ulicifolia* is sparser than that of *H. turleyana* and its sepals have a long-acuminate apex with a longer but less rigid point. The bracts of *H. ulicifolia* are also less hairy than those of *H. turleyana*.

Hibbertia turleyana differs from *H. hamulosa* in leaf shape and sepal indumentum. The leaves of *H. hamulosa* have a more prominent midrib which protrudes beyond the level of the rounded recurved leaf margins and its sepals have a mixture of stellate and uncinata hairs. *Hibbertia hamulosa* has shorter peduncles (2–4 mm long) and somewhat longer subulate bracts (1.5–4 mm long). The stamens are usually fewer, 5–8 in *H. hamulosa*.

Note. Previously known by the phrase name *Hibbertia* sp. Helms Arboretum (*C.D. Turley* 1/198).

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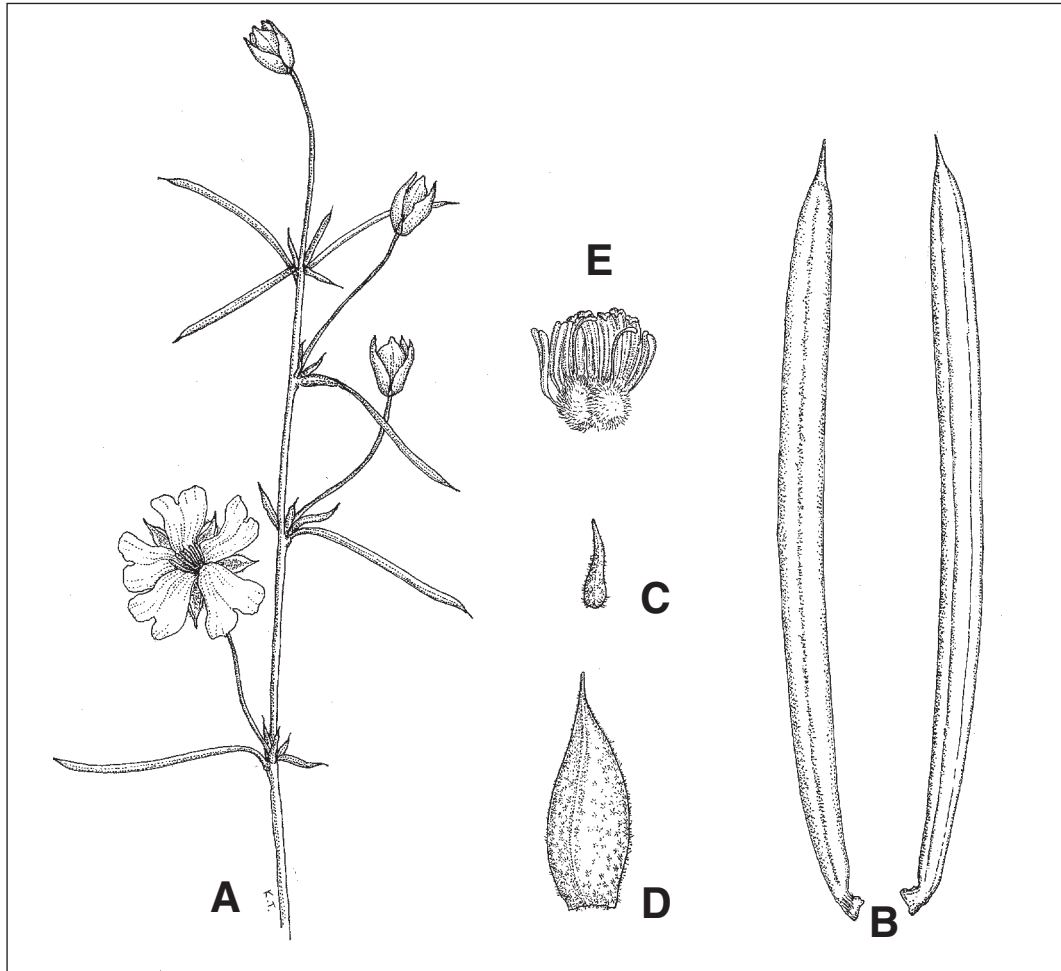


Figure 3. *Hibbertia turleyana*, drawn from C.D. Turley 11B/999 A– flowering branch (x2), B– leaf, both surfaces (x8), C– bract (x8), D– outer sepal (x8), E– stamens and carpels (x8).

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