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Taxonomy of the *Calytrix ecalycata* complex (Myrtaceae)

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Abstract

G.J. Keighery, Taxonomy of the *Calytrix ecalycata* complex (Myrtaceae). *Nuytsia* 15(2): 261–268 (2004). The part of the genus *Calytrix* Labill. that was formerly regarded as the monotypic genus *Calythropsis* C.A. Gardner is shown to be composed of two allopatric species, *Calytrix ecalycata* Craven and *C. pimeleoides* C.A. Gardner ex Keighery. The former species is comprised of three geographically separated subspecies, *C. ecalycata* subsp. *ecalycata*, *C. ecalycata* subsp. *brevis* Keighery and *C. ecalycata* subsp. *pubescens* Keighery.

Introduction

Calytrix ecalycata sens. lat. is a very distinctive member of the genus *Calytrix* Labill., having been previously placed in a separate monotypic genus, *Calythropsis* C.A. Gardner. *Calythropsis* differed from *Calytrix* in having 4- rather than 5-merous flowers and lacking a calyx. Although Craven (1987) maintained *Calythropsis* as a distinct genus, further studies led Craven (1990) to reduce it to a synonym of *Calytrix*, which necessitated the selection of a new epithet (*ecalycata*) for the species previously known as *Calythropsis aurea* C.A. Gardner. *Calytrix ecalycata* appears, as Craven (1987) noted, to be most closely related to *C. platycheiridia* Craven.

Earlier, Keighery (1979) had examined and illustrated materials grown in Kings Park which suggested that several taxa were included under *Calythropsis aurea*. This was also the opinion of Charles Gardner, who had annotated material from north of Geraldton as a separate species. Craven (1990) noted the degree of variation in his broadly circumscribed *Calytrix ecalycata*, but he felt that the variation was continuous and was unable to segregate any taxa within the complex. Subsequent examination of all collections held at the Western Australian Herbarium has lead the current author again to the conclusion that the variation is discontinuous and that several allopatric taxa are included under *Calytrix ecalycata*. This paper erects a new species based on Charles Gardner's manuscript name and describes several geographic subspecies in *Calytrix ecalycata*.

Taxonomy

Key to the species and subspecies of the *Calytrix ecalycata* complex

Because of the unique nature of the group in being 4- rather than 5-merous and lacking a calyx, the members of the of the *Calytrix ecalycata* complex separate at the beginning of any key to the genus.

1. Flowering branches with appressed imbricate ovate-obovate floral leaves ..... **C. pimeleoides**
1. Flowering branches with erect-spreading linear floral leaves
  2. Leaves and cheiridium pubescent ..... **C. ecalycata** subsp. **pubescens**
  2. Leaves and cheiridium glabrous
    3. Leaves 7–9 mm long, cheiridium resinous ..... **C. ecalycata** subsp. **ecalycata**
    3. Leaves 3–5 mm long, cheiridium not resinous ..... **C. ecalycata** subsp. **brevis**

1. Calytrix pimeleoides C.A. Gardner ex Keighery, *sp. nov.*

Frutex ad 1.6 m altus, glaber. Folia exstipulata, imbricata, lamina, late elliptica vel obovate, 6–7 mm longa; foliorum floralium imbricata, lamina ovata, 5–6 mm longa, 4–5 mm late. Flores cheiridio subcomplanato subteni. Hypanthium 4 costata. Stamina 35-50, 2-3 seriate. Stylus non persistens, apice hypanthii abscendens.

Typus: near Ajana, Western Australia, 19 August 1961, *C.A. Gardner* 13189 (*holo:* PERTH *02335255*; *iso:* CANB).

Slender erect *shrub*, to 1.4 m tall and wide. *Branchlets* glabrous, brown-green not reddish, angled, apices of stems continuing growth. Bud scales absent. *Leaves* alternate, imbricate, appressed below inflorescence, stipules absent, petiole glabrous, *c.* 0.5 mm long, blade narrowly elliptic to obovate, 7–9 mm long, 2–3 mm wide, depressed-triangular in transverse section, with prominent scarious ciliate margins, ridged abaxially, surface slightly convex, gradually tapering to the petiole, apex acute. *Floral leaves* ovate, petiole obsolete, 5–6 mm long, 4–5 mm wide, margins scarious, ciliate-erose. *Inflorescence* 15–25 mm wide, many-flowered, usually at apex of branches; peduncles *c.* 0.5 mm long. *Cheiridium* flattened (more or less obovate to elliptic), glabrous, 5-6 mm long, laterally strongly ridged, lobes narrowly ovate, 1–2 mm long, margins and keel ciliate, inner entire, apex acuminate. *Hypanthium* glabrous, 4 ribbed, *c.* 3 mm long, not produced above the ovary, subcylindrical. *Calyx lobes* absent. *Petals* glabrous, yellow, narrowly elliptic to oblong, 9–10 mm long, *c.* 2 mm wide, apex rounded. *Staminal disc* prominent; stamens 35–50, 2- or 3-seriate, filaments and anthers yellow, 4–5 mm long, anthers all fertile, connective not prominent. *Style* yellow, deciduous, abscising at ovary apex, *c.* 5 mm long. (Figure 1A–D).

Selected specimens examined. WESTERN AUSTRALIA: S of Ogilvie, 28 Oct. 1962, *J.S. Beard* 2103 (PERTH); 20 km E of Kalbarri, 10 Aug. 1979, *D. & B. Bellairs* 1648 (PERTH); Northampton, Aug. 1947, *B.J. Grieve s.n.* (PERTH); 22.5 km N of Northampton, 2 June 1973, *B.L. Powell* 73054 (PERTH).
Distribution. Occurs inland of Kalbarri to Ajana and south to Northampton. (Figure 2A)

Habitat. On deep yellow sands, usually under *Banksia sceptrum* or *Banksia prionotes* low woodland.

Flowering period. August to October.

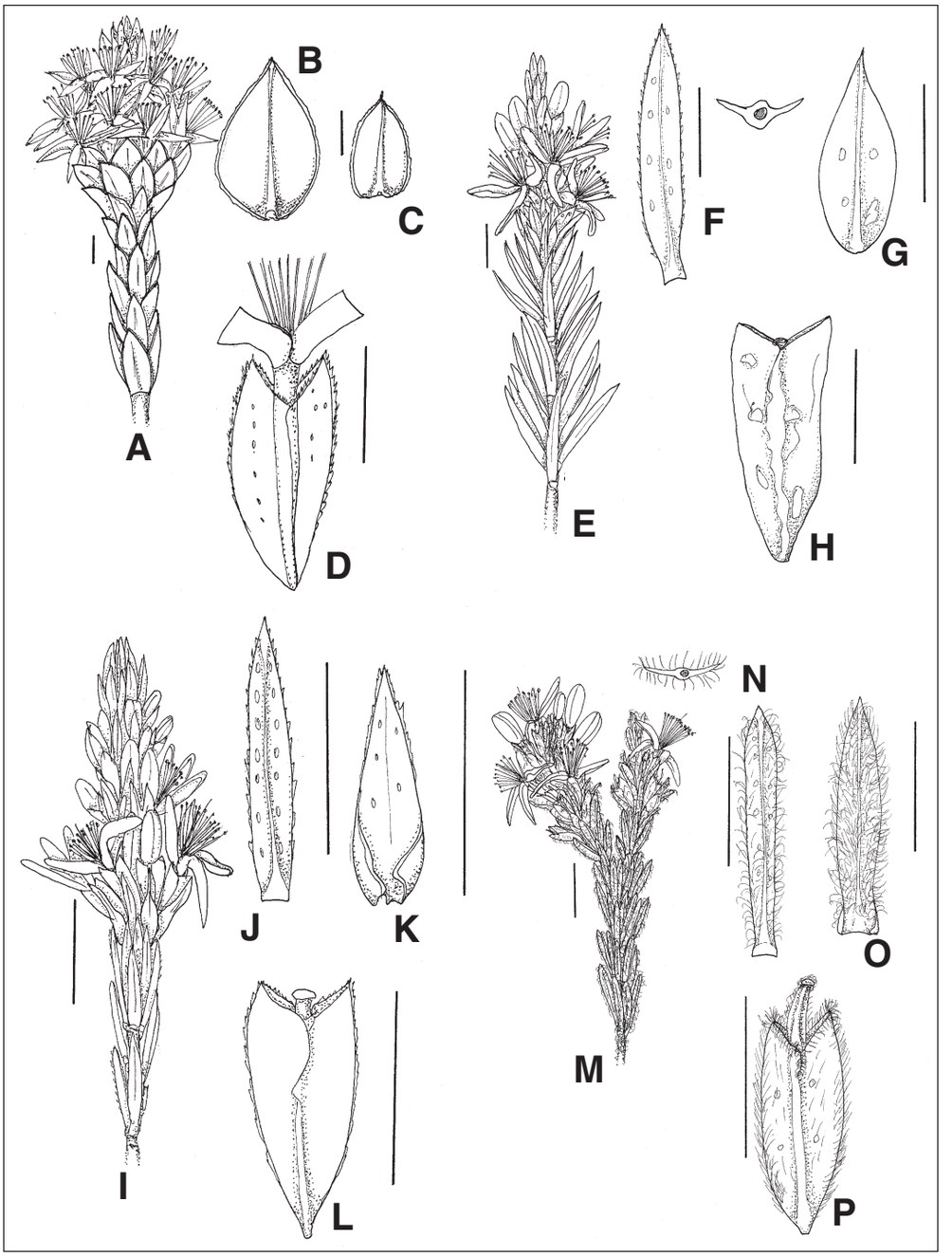

Figure 1: A–D. *Calytrix pimeleoides*. A – flowering branch, B – leaf, C – floral leaf, D – cheiridium; E–H. *Calytrix ecalycata* subsp. *ecalycata*. E – flowering branch, F – leaf with TS, G – floral leaf, H – cheiridium; I–L. *Calytrix ecalycata* subsp. *brevis*. I – flowering branch, J – leaf, K – floral leaf, L – cheiridium; M–P. *Calytrix ecalycata* subsp. *pubescens*. M – flowering branch, N – leaf, with TS, O – floral leaf, P – cheiridium. Drawn from *C.A. Gardner* 19 Aug.1961 (A–D), *R.J. Cranfield & P. Spencer* 8095 (E–H), *S. Patrick* 1520 (I–L) and *E.A. Griffin* 5322 (M–P).
Scale bars for flowering branches = 5 mm, all other scale bars = 3 mm.

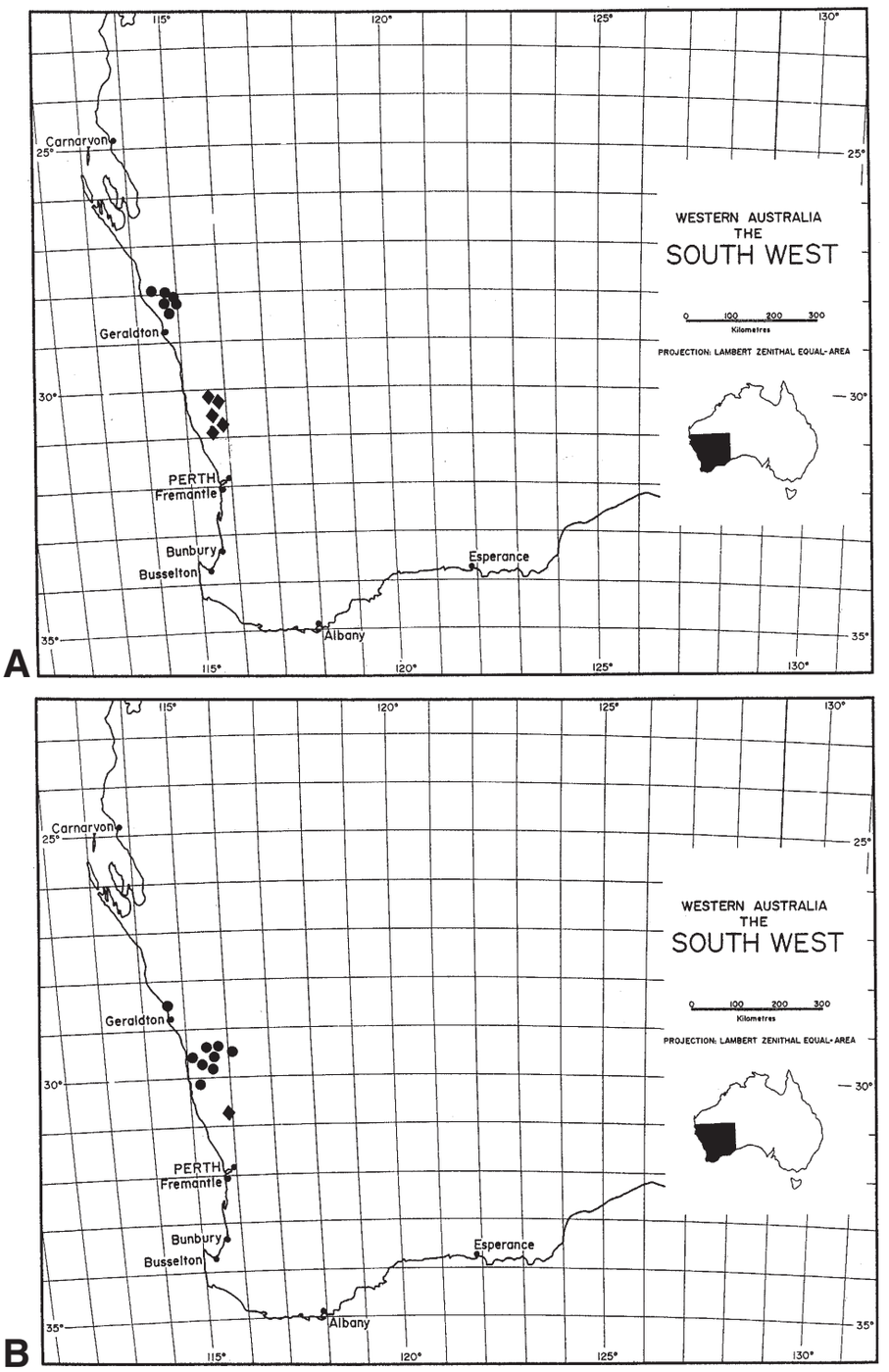

Figure 2. Distribution maps. A – *Calytrix pimeleoides* ● and *C. ecalycata* subsp. *brevis* ◆ ; B – *C. ecalycata* subsp. *ecalycata* ● and *C. ecalycata* subsp. *pubescens* ◆ .

Chromosome number. 2n = 22 (Rye 1979). Voucher *B.L. Powell* 73054 (PERTH 02335220).

Conservation status. Conservation Codes for Western Australian Flora: Priority Three. Present in Kalbarri National Park, but size of population uncertain.

Etymology. The epithet *pimeleoides* is a reference to the superficial appearance of the plant with the imbricate leaves of certain *Pimelea* species, such as *P. ammocharis* or *P. argentea*.

Notes. This species was annotated by Gardner as *Calytrix pimeleoides* ms on the collection chosen as the type. This is an appropriate name for the new taxon and has therefore been maintained.

It differs from *Calytrix ecalycata* in possessing large inflorescences, appressed imbricate leaves with prominent scarious margins on the glabrous flowering branches. The large ovate floral leaves and large flowers are also distinctive.

2. Calytrix ecalycata Craven, *Aust. Syst. Bot.* 3: 722 (1990). – *Calythropsis aurea* C.A. Gardner, *J. Roy. Soc. Western Australia* 27: 189 (1942). *Type:* on the banks of the Arrowsmith River, Western Australia September 1940, *W.E. Blackall* 4449 (h*olo:* PERTH 01628658; *iso*: CANB, PERTH 01628232, 01628240, 01628666, 01628674).

Slender erect *shrub*, to 1.6 m tall and wide, usually less. *Branchlets* glabrous, hirsute or resinous when flowering otherwise glabrous, brown-green not reddish, angled, apices of stems continuing growth. *Bud scales* absent. *Leaves* alternate, overlapping but not imbricate, erect, spreading to ascending, stipules absent, petiole glabrous or hirsute, 0.5 mm long, blade linear to narrowly elliptic, glabrous or pubescent, 3–9 mm long, 0.5–0.75 mm wide, slightly curved or straight, depressed triangular in transverse section, ridged abaxially, oil glands prominent, margins entire, ciliate or toothed, gradually tapering to the petiole, apex acute. *Floral leaves* broader, linear or elliptic-ovate, with an expanded base, glabrous or densely hairy, elliptic-ovate, usually shorter than vegetative leaves, petiole obsolete or 0.5 mm long, 3–6 mm long, 1-2 mm wide, margins scarious, ciliate or pubescent, oil glands prominent and glabrous , pubescent or covered in sticky resinous exudate, apex acute or long acute. *Inflorescence* 10–20 mm wide, axis resinous, glabrous or pubescent, many-flowered, usually at apex of branches; peduncles *c.* 0.5 mm long. *Cheiridium* flattened (more or less obovate to elliptic), glabrous, pubescent or resinous, shiny, 4–6 mm long, laterally strongly ridged, lobes narrowly ovate, 0.5 mm long, margins entire, apex acuminate. *Hypanthium* glabrous, 4-ribbed, fused to style, 4–6 mm long, compressed, subcylindrical, region above ovary either not or shortly produced above cheiridium. *Calyx lobes* absent. *Petals* glabrous, yellow, narrowly elliptic to oblong, 5–7 mm long, *c.* 2 mm wide, apex rounded. *Staminal disc* prominent; stamens 35–50, 2- or 3-seriate, filaments and anthers yellow, 4–5 mm long, anthers all fertile, connective not prominent. *Style* yellow, deciduous, abscising at ovary apex, *c.* 5 mm long.

Distribution. Occurs between Port Gregory and Regans Ford.

Etymology. The epithet is from the Latin words meaning without a calyx, referring to the genus *Calythropsis* lacking a calyx.

Notes. Three allopatric subspecies are recognised.

2a. Calytrix ecalycata Craven subsp. **ecalycata**

Slender erect *shrub*, to 1.6 m tall and wide. *Branchlets* resinous when flowering otherwise glabrous. *Leaves* erect, spreading to ascending; petiole 0.5 mm long, glabrous; blade linear, 7–9 mm long, 0.5–0.75 mm wide, glabrous, oil glands prominent, margins entire. *Floral leaves* elliptic-ovate, 4–6 mm long, *c.* 2 mm wide, margins scarious, ciliate, oil glands prominent, covered in sticky resinous exudate, apex long-acute. *Inflorescence* 15–20 mm wide, axis resinous. *Cheiridium* 5–6 mm long, resinous, shiny. *Hypanthium* glabrous, region above ovary short not produced above cheiridium. *Petals* 6–7 mm long. (Figure 1E–H).

Selected specimens examined. WESTERN AUSTRALIA: Yerina Springs road, 5.7 km N of Port Gregory road, 8 Aug. 1997, *R. Davis* 3633 (PERTH); 30 km SW of Three Springs, 4 Sept. 1984, *D.B. Foreman* (CANB, MEL, PERTH); 8 km N of Mt Lesueur, 24 Sep. 1979, *E.A. Griffin* 2224 (PERTH); Dookanooka Nature Reserve, SW of Three Springs, 5 Oct. 1992, *E.A. Griffin* 6914 (PERTH); Billeranga Hills, 17 km W of Morawa, 22 Apr. 1997, *F. Keast* 007 (PERTH).

Distribution. Occurs east of Port Gregory, then apparently disjunct to Morawa and Three Springs and west to Mt Lesueur. (Figure 2B)

Habitat. Occurs on sand (yellow, white and grey), shallow loamy soils over ironstone, sandstone and granite, sands over clays or clay-loams. In Wandoo woodland, *Melaleuca uncinata* shrubland, mixed low heath, *Eucalyptus eudesmioides* mallee. These sites are largely water gaining sites that are winter damp.

Flowering period. August to September.

Conservation status. Conservation Codes for Western Australian Flora: Priority Three. Relatively widespread but conservation status uncertain, although recorded as present in at least one nature reserve and probably Mt Lesueur National Park.

Notes. Differs from all other members of the *C. ecalycata* complex in the larger flowers, longer leaves, resinous floral stems, floral leaves and cheiridium. Differs from *Calytrix pimeleoides* in the linear, overlapping spreading not imbricate leaves.

2b. Calytrix ecalycata subsp. **brevis** Keighery, *subsp. nov.*

Folia exstipulata, non imbricata, lamina lineare, glabrescens, 3–5 mm longa, 0.75 mm late; foliorum floralium lamina lineare vel lineare-obovate, 3–4 mm longa, 1 mm late. Flores cheiridio subcomplanato, glabrescentia.

Typus: Warro Rd, 30º43'S, 115º51'E, Western Australia, *S. Patrick* 1545 (*holo:* PERTH 04284399; *iso:* CANB).

Slender erect *shrub*, to 1 m tall and wide. *Branchlets* glabrous. *Inflorescence* 10–15 mm wide. *Leaves* erect-ascending below inflorescence; petiole *c.* 0.5 mm long, glabrous; blade linear to narrowly elliptic, 3–5 mm long, 0.5–0.75 mm wide, with sparsely ciliate or toothed margins. *Floral leaves* linear with an expanded base, petiole obsolete, usually shorter than vegetative leaves, 3–4 mm long, *c.* 0.5 mm

wide, margins scarious, erose. *Cheiridium* glabrous, *c.* 4 mm long, outer margins ciliate, inner entire. *Hypanthium* glabrous, 4 ribbed, *c.* 3 mm long, produced above the ovary. *Petals* 5–6 mm long. (Figure 1I–L).

Other specimens examined. WESTERN AUSTRALIA: between Moora and Jurien Bay, 16 Aug. 1973, *T.G. Hartley* 13923 (CANB, PERTH); Coorow to Greenhead road, 7.6 km W of Carger Rd, Big Soak Plain, 23 Oct. 1993, *S. Patrick* 1386 (PERTH); Salt River Road, 17 km N of Regans Ford, 20 Aug. 1993, *S. Patrick* 1520 (PERTH); in District Irwin, Oct. 1961, *W. Stevens s.n.* (PERTH); Wilcocks Rd, Coorow, 8 Oct. 1996, *s. coll.* (PERTH).

Distribution. From Coorow to west of Moora and then south to near Regans Ford. (Figure 2A)

Habitat. Occurs largely on flat yellow sandplain in Mallee shrubland or mixed shrubland.

Flowering period. From August to October.

Conservation status. Conservation Codes for Western Australian Flora: Priority Three. Relatively restricted and conservation status uncertain, although recorded as present in at least one nature reserve.

Etymology. From the Latin word for short, referring to the short leaves.

Notes. Differs from other members of the complex in the glabrous stems, floral leaves and cheiridium and from *Calytrix ecalycata* subsp. *ecalycata* also in the short linear, overlapping erect but not spreading leaves.

2c. Calytrix ecalycata subsp. **pubescens** Keighery, *subsp. nov.*

Frutex ad 60 cm altus, pubescentia . Folia, lamina, pubecentia, lineare, 4–6 mm longa, 0.75 mm late; foliorum floralium, pubescentia, lamina lineare vel lineare-elliptica, 4–6 mm longa, 1 mm late. Flores cheiridio, pubescentia.

Typus: Barberton West Rd, south-west of Moora, 30º43'S, 115º58'E, Western Australia, 29 September 1988, *E.A. Griffin* 5322 (*holo:* PERTH 03118622).

Slender erect *shrub*, to 0.6 m tall and wide. *Branchlets* pubescent. *Inflorescence* 10–13 mm wide. *Leaves* spreading-ascending; blade linear, 4–6 mm long, 0.5–0.75 mm wide, covered with long white hairs, giving the plant a greyish colour, margin entire. *Floral leaves* broader with an expanded base, 4–6 mm long, *c.* 1 mm wide, more densely hairy. *Cheiridium* margins pubescent, rest covered in scattered hairs. *Hypanthium* not produced above the ovary. *Petals* 5–6 mm long.

Other specimens examined. WESTERN AUSTRALIA: *C.A. Gardner*? 12766 (PERTH 04134702, 05073545).

Distribution. Known only from type locality. (Figure 2B).

Habitat. On brown loamy clay in *Eucalyptus wandoo* woodland.

Flowering period. Recorded in flower in September.

Conservation status. Conservation Codes for Western Australian Flora: Priority One.

Etymology. The epithet is from the Latin word for hairy.

Notes. Differs from other members of the complex in the non-glandular pubescent stems, floral leaves and cheiridium, and from *Calytrix ecalycata* subsp. *ecalycata* also in the short linear, erect but not spreading leaves and the smaller flowers.

This is the southernmost member of the complex, which has been represented in PERTH for many years by an unlabelled collection, perhaps collected by Charles Gardner.

References

Craven, L.A. (1987). A taxonomic revision of *Calytrix* Labill. (Myrtaceae). *Brunonia* 10: 1–138.

Craven, L.A. (1990). Three additional species in *Calytrix* (including the reduction of *Calythropsis*), and notes on *Calytrix exstipulata* (Myrtaceae). *Australian Systematic Botany* 3: 719–725.

Keighery, G.J. (1979). *Calythropsis*. *Australian Plants* 10: 18–20.

Rye, B.L. (1979). Chromosome number variation in the Myrtaceae and its taxonomic implications. *Australian Journal of Botany* 27: 547–573.