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SHORT COMMUNICATION

Reinstatement of *Hypocalymma linifolium* and lectotypification of *H. xanthopetalum* (Myrtaceae: Chamelaucieae)

Hypocalymma (Endl.) Endl. is a south-western Australian genus of Myrtaceae tribe Chamelaucieae DC. that comprises at least 30 species. The genus was reviewed by Strid and Keighery (2002), who selected lectotypes for a number of species including *H. xanthopetalum* F.Muell. However, their lectotypification of *H. xanthopetalum* was incomplete as they did not specify which of the two syntypes represented at MEL they were designating. An Oldfield collection from Yatheroo is chosen here as the lectotype.

This short communication also reinstates *H. linifolium* Turcz., which was treated by Strid and Keighery (2002) as a synonym of *H. tetrapterum* Turcz., and seeks to clarify which Drummond specimens are part of the type gathering. Some of the major differences between the three species examined here are given in the key below.

1. Young stems ± terete (not obviously angled), hairy. Stamens commonly 50–115. Ovules 2 per loculus (Mingenew–Muchea) ..... **H. xanthopetalum** complex

1: Young stems 4-angled, glabrous. Stamens commonly 20–40. Ovules 1 per loculus

2. Petals 2.5–3 mm long, bright yellow. Style 3–3.5 mm long; base terminal on ovary (Badgingarra–Dandaragan area) ..... **H. linifolium**

2: Petals 3–4 mm long, white or pink. Style 4–5 mm long; base inserted in a depression that reaches down to the level of the placentas (Eneabba–S of Badgingarra)..... **H. tetrapterum**

Hypocalymma linifolium Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 35(2): 325 (1862). *Type citation*: 'Cum prioribus sub. n. 65.' *Type specimen*: Swan River [between Dandaragan and lower Murchison River, Western Australia, 1850–1851], *J. Drummond* 6: 65 [as 7: 65] (*holo*: KW 001001303; *iso*: BM 001015085, E 00394754, G 00223369, ?K 000821997, LD 1034286 & 1035774, MEL 0104602 [pieces on left enclosed with tag bearing the number 65], NSW 456458, W 18890153069).

Shrub commonly 0.5–0.7 m high, probably with a lignotuber; flowering stems commonly with 3–5 clusters of flowers. *Young stems* 4-angled, glabrous, each angle with an obvious ridge at first. *Leaves* sessile, narrowly ovate to almost linear, 12–14 mm long, 2–4 mm wide, concolorous, glabrous, with entire margins, with an obvious groove along the midrib of abaxial surface and often also with a very narrow groove along the midvein of the abaxial surface; apex acute, mucronulate. *Peduncles* very reduced; basal bract persistent, 1–2 mm long. *Bracteoles* persistent, 1.5–2 mm long. *Pedicels* ± absent. *Flowers* 6–8 mm diam. *Hypanthium* 1.25–1.5 mm long, *c.* 3 mm diam. *Sepals* 1.3–1.6 mm long, scarious, minutely and irregularly denticulate to entire. *Petals* 2.5–3 mm long, bright yellow, persistent. *Stamens* 22–41, in 2 series, very shortly united at base. *Longest filaments c.* 3 mm long. *Anthers c.* 0.5 mm long. *Ovary* 3-locular; ovules 1 per loculus, erect. *Style* 3–3.5 mm long; base not inset. *Fruits* 2.5–3 mm long. *Seeds* not seen at maturity but at least 2.1 mm long, reticulate-pitted, brown with a whitish inner protrusion.

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Diagnostic features. *Young stems* 4-angled, glabrous. *Leaves* 12–14 mm long, 2–4 mm wide, entire. *Petals* 2.5–3 mm long, bright yellow, persistent. *Stamens* 22–41. *Ovary* 3-locular; ovules 1 per loculus. *Style* 3–3.5 mm long; base not inset.

Specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 27 Sep. 1932, *W.E. Blackall* 2903 (PERTH); 23 Aug. 1968, *K.R. Newbey* 2784 (PERTH).

Distribution and habitat. Occurs in sand in the Dandaragan area.

Phenology. Flowers from August to September.

Etymology. From the Latin *linum* (thread) and *-folius* (-leaved) in reference to the narrow leaves of this taxon. However, narrower, more thread-like leaves are found in *H. gardneri* Strid & Keighery, which is part of the *H. xanthopetalum* complex.

Conservation status. Conservation Codes for Western Australian Flora: Priority One (Smith 2017). The most recent collection of this taxon was made in 1968 so it is in urgent need of a field survey to determine how many populations, if any, still exist.

Typification. In publications before 1 January 2001, if the author cited a particular specimen as the holotype 'of a previously published name but other specimens of the cited gathering existed, then under *ICN* Art. 9.9 this was an error to be corrected to lectotype' (McNeill 2014: 1112). It can therefore be argued that Marchant (1990) has effectively lectotypified many Turczaninov names, including *H. linifolium*, by citing them as holotypes. Strid and Keighery (2002) refer to the KW sheet of *H. linifolium* as the lectotype but do not attribute the lectotypification to Marchant (1990) nor do they include the words 'here designated'. I regard KW 001001303 as the holotype since it was the only specimen used by the author.

MEL 0104602 and MEL 0104603 are labelled as having material collected by James Drummond, with the collection number given as 65. However, all of the pieces on MEL 0104603 and three pieces on MEL 0104602 do not match the protologue of *H. linifolium* as they have hairy stems. The material with glabrous stems on the left side of MEL 0104602, to which the tag number 65 is affixed, is interpreted as type material of *H. linifolium*. The remaining three pieces on this sheet are referable to *H. xanthopetalum*, while material on MEL 0104603 is entirely of *H. xanthopetalum*, with some material on the latter sheet having particularly narrow leaves. The three pieces of *H. xanthopetalum* on MEL 0104602 are variable, with the specimen on the left having fairly narrow leaves with a hairy undersurface and the two on the right having broad leaves with both surfaces glabrous. There is a possibility that some of the material of *H. xanthopetalum* on these two sheets corresponds to either *J. Drummond* 66 or 67 (the type numbers of two synonyms, *H. ciliatum* Turcz. and *H. cuneatum* Turcz.; see below) but I cannot confidently assign this material to either collection. Confusion of the collecting numbers may also have occurred on K 000821997, which is labelled *J. Drummond* 66 (the type of *H. ciliatum*) but has been determined by Arne Strid as type material of *H. linifolium*.

Affinities. Turczaninow (1862) placed *H. linifolium* in sect. *Chrysocalymna* Turcz. *nom. illeg.* together with two other yellow-flowered taxa that are now considered to be synonyms of *H. xanthopetalum*. He recorded the ovule number of all these taxa as two per loculus, but that was incorrect as *H. linifolium* differs from the *H. xanthopetalum* complex in having only one ovule per loculus. Bentham (1867) corrected that error in ovule number, and transferred *H. linifolium* to sect. *Astrocalymma* Schauer, where *H. tetrapterum* was placed. He distinguished *H. linifolium* from *H. tetrapterum* by differences

in its leaves and flower colour. Note that both sect. *Chrysocalymna* and sect. *Astrocalymma* are now treated as synonyms of sect. *Hypocalymma* (Rye *et al.* 2013).

Hypocalymma linifolium was reduced to synonymy under *H. tetrapterum* by Strid and Keighery (2002: 557), who considered it to be a 'slender, more narrow-leaved form collected in the same area as the type of *H. tetrapterum*'. While *H. tetrapterum* does appear to be a close relative, it differs from *H. linifolium* in the characters used in the key above, as well as its tendency to have somewhat winged young stems and more obvious oil glands. In *H. tetrapterum* the leaves usually have numerous oil glands that are surrounded by a circle of papillae, and the young stems may have a papillose appearance through the dense cover of similar oil glands.

Notes. The identity of *H. linifolium* has been confused for some time, perhaps partly as a result of the uncertainty regarding its ovule number and the mixed material on MEL 0104602 and 0104603, although the species keys out accurately in Blackall and Grieve (1980). A number of taxa, including one in cultivation (Elliot & Jones 1990), have been misidentified as *H. linifolium*.

Of the two PERTH collections currently housed as *H. linifolium*, *K.R. Newbey* 2784 matches the type best in having a narrow groove along the midvein of the upper surface of many of its leaves, whereas *W.E. Blackall* 2903, which was possibly collected further west, has the upper surface level along the midvein of all leaves. The immature seeds examined were from the latter collection.

Drummond (1853) discussed a number of *Hypocalymma* species he collected in the region north of Perth, including the Dandaragan area, so clearly travelled through the small area where *H. linifolium* was collected in 1932 and 1968. The rarity of the taxon raises the possibility that it is a hybrid, presumably between *H. tetrapterum* and one of the members of the *H. xanthopetalum* complex. However, in view of its persistence from its original collection in about 1850 up to the last known sighting of 1968 and its clearly distinctive morphology, the taxon certainly appears to warrant formal recognition.

Hypocalymma xanthopetalum F.Muell., *Fragm.* 2: 29 (1860). *Type citation*: 'In locis aridis ad sinum Champion Bay et flumen Murchison. A. Oldfield.' *Type specimens*: near Yatheroo [south of Dandaragan], Western Australia, 1859–1860, *A.F. Oldfield* 33 (*lecto*, here designated: MEL 0104657); 'Champion Bay' [probably collected south of Dongara, Western Australia], *s. dat.*, no collector or number specified [presumably *A.F. Oldfield*] (residual *syn*: MEL 0104658).

Hypocalymma ciliatum Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 35(2): 325 (1862). *Type citation*: 'Cum prioribus sub. n. 66.' *Type specimen*: Swan River [between Moore and Murchison Rivers, Western Australia], 1850–1851, *J. Drummond* 6: 67 [as 7: 67] (*holo* : KW 001001301; *iso*: BM 001015083, G 00223371, K 000821986, LD 1005390 & 1005454, MEL 104659, W).

Hypocalymma cuneatum Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 35(2): 325 (1862). *Type citation*: 'Cum prioribus sub. n. 67.' *Type specimen*: Swan River [between Moore and Murchison Rivers, Western Australia], 1850–1851, *J. Drummond* 6: 67 [as 7: 67] (*holo*: KW 001001302; *iso*: BM 001015082, G 00223372, K 000821985).

Typification. Both syntypes of *H. xanthopetalum* are a good match for the protologue, although the material is poor, with the stems largely bare and the leaves and flowers mostly contained in packets. The leaves are larger on average on MEL 0104658 than on MEL 0104657, being up to 8 mm wide on the former and up to 6 mm wide on the latter. Both specimens have blue labels with 'Hypocalymma

xanthopetala' in Mueller's handwriting and were seen by Bentham. Neither sheet is annotated by Arne Strid or Greg Keighery.

Both of the localities given in the protologue, Champion Bay and Murchison River, are north of the known distribution of *H. xanthopetalum*, which extends from Mingenew south to Muchea. MEL 0104657 has an Oldfield label that reads 'Diffuse shrub 1 foot. – sandy Place near Yatheroo. 33', and a separate blue Mueller label that gives the locality as 'Murchison R., W.A.' and indicates Oldfield as the collector. Yatheroo is certainly a likely place for the specimen to have been collected, well within the current distribution of *H. xanthopetalum*. MEL 0104658 has no collection information other than a locality of 'Champion Bay'. It seems likely that this specimen was also collected by Oldfield, although the collection was presumably made at least 60 km further south. MEL 104658 is selected here as the lectotype because it bears the collector's notes and an accurate locality.

Notes. Specimens currently placed under *H. xanthopetalum* are extremely variable, with the narrowest-leaved ones apparently intergrading with specimens currently identified as *H. gardneri*. The *H. xanthopetalum* complex needs detailed study to determine how many species should be recognised; many characters, such as stamen number and the degree to which the filaments are connate, appear to show continuous variation, rather than having clear discontinuities that could be used to delimit taxa.

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