

***Brachyloma brevilobum* and *Conostephium interstans*, two new epacrids
(Ericaceae: Epacridoideae: Styphelioideae) from remote areas of the
central south coast of Western Australia**

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SHORT COMMUNICATION

Brachyloma brevilobum* Hislop, *sp. nov.

Type: north-west of Condingup, Western Australia [precise locality withheld for conservation reasons], 8 June 2024, K. Walkerden KSW 576 (*holo:* PERTH 09770704; *iso:* CANB, CNS, HO, K, MEL, NSW).

Erect *shrubs* to c. 1.6 m high and 1.2(2) m wide, single-stemmed at ground level with a fire-sensitive rootstock. Young *branchlets* with a very short, sparse indumentum of hairs < 0.05 mm long. *Leaves* helically arranged, variably antrorse (mostly steeply so); apex acute or occasionally subacute, with a blunt callus tip; base cuneate to rounded; petiole well-defined, 0.8–1.7 mm long, glabrous throughout or with a few hairs on the adaxial surface; lamina ovate to narrowly ovate or elliptic to narrowly elliptic, 4.0–7.0 mm long, 1.8–3.0 mm wide, concolorous, concave adaxially, longitudinal axis gently incurved; adaxial surface slightly shiny, glabrous, without evident venation; abaxial surface matt throughout or slightly shiny on vein surfaces, glabrous, with 5–7 primary veins, openly and shallowly grooved between the veins; margins glabrous or with very short, coarse, antrorse hairs < 0.05 mm long. *Inflorescence* axillary, erect; axis 0.9–1.5 mm long, 1- or 2-flowered, with a moderately dense indumentum, $\pm$ terete, terminating in a bud-rudiment; flowers erect, sessile. *Fertile bracts* depressed-ovate or broadly ovate, 0.5–0.7 mm long, 0.6–0.8 mm wide, with 2–4 sterile bracts on the axis below. *Bracteoles* depressed-ovate or broadly ovate, 0.5–0.8 mm long, 0.7–1.0 mm wide, obscurely keeled, obtuse; abaxial surface glabrous or occasionally with a few hairs about the keel, not striate; margins ciliolate. *Sepals* broadly ovate, 1.2–1.5 mm long, 0.9–1.0 mm wide, obtuse or occasionally subacute; abaxial surface glabrous, pale green, becoming whitish towards the margins, with obscure venation; margins ciliolate with hairs to 0.1 mm long. *Corolla tube* white, ovoid to ellipsoid or narrowly so, distinctly longer than the sepals, 1.5–2.0 mm long, 1.2–1.5 mm wide, external and internal surfaces glabrous. *Corolla lobes* white, thick, narrowly triangular, shorter than the tube, 1.0–1.5 mm long, 0.5–0.6 mm wide, spreading from the base and recurved, often with inflexed tips, external surface glabrous, internal surface keeled and strongly papillate throughout (except sometimes for the inflexed tips) with a narrow zone of conspicuous retrorse hairs arising from the base and projected into the upper tube. *Anthers* partially exerted from the tube (by up to 1/4 of their length), 0.7–0.9 mm long, the lateral surfaces papillose, apex shortly emarginate. *Filaments* terete, c. 0.1 mm long, attached to anther just below the apex, adnate to the tube just below the sinuses. *Nectary* annular, 0.3–0.5 mm long, lobed for up to 1/3 of its length, glabrous. *Ovary* globose or broadly obovoid, 0.5–0.7 mm long, 0.5–0.7 mm wide, glabrous, 2(3)-locular, very pale green or almost white. *Style* 0.3–0.4 mm long, minutely scabrous, well-differentiated from ovary apex; stigma not or scarcely expanded. *Fruit* depressed-globose, usually slightly compressed laterally and elliptic in transverse section or obscurely trigonous if 3-locular, 1.6–1.8 mm long, 2.2–2.5 mm wide, much longer

than the sepals; gynophore absent; surface glabrous, $\pm$ rugose; apex $\pm$ truncate with rounded shoulders; style retained at maturity. (Figure 1)

Diagnostic characters. Distinguished by the following combination of characters: flowers white; corolla lobes short, narrowly triangular, often with inflexed tips, 1.0–1.5 mm long, 0.5–0.6 mm wide, shorter than the tube and strongly papillate throughout, except sometimes for the inflexed tips; ovary 2(3)-locular; fruit depressed-globose, usually slightly compressed laterally and elliptic in transverse section.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 2 Mar. 2024, K. Walkerden KSW 546 (PERTH); 29 Mar. 2024, K. Walkerden KSW 542 (PERTH); 29 Mar. 2024, K. Walkerden KSW 543 (CANB, CNS, MEL); 8 June 2024, K. Walkerden KSW 570 (NSW, PERTH); 8 June 2024, K. Walkerden KSW 572 (K, PERTH); 8 June 2024, K. Walkerden KSW 573 (PERTH); 8 June 2024, K. Walkerden KSW 575 (CANB, PERTH); 16 June 2024, K. Walkerden KSW 582 (CNS, PERTH); 16 June 2024, K. Walkerden KSW 585 (MEL, PERTH).

Distribution and habitat. Currently known from a small area north-east of Esperance. Grows in sandy soils, sometimes in subsaline sites, in the understorey of mallee woodland. Associated species include *Eucalyptus pleurocarpa*, *Banksia media*, *Melaleuca pulchella*, *M. hnatiukii*, *Hakea cinerea*, *Phymatocarpus maxwellii* and *Grevillea oligantha*.

Phenology. Has an extended flowering period, at least between March and July. Fruit can similarly be expected to be present over many months of the year and has so far been recorded in March and June.

Etymology. From the Latin *brevis* (short) and *lobus* (a lobe), a reference to the short corolla lobes relative to those of the otherwise similar *B. stenlobum* Hislop & Cranfield.

Conservation status. To be listed as Priority One under Conservation Codes for Western Australian Flora (Tanya Llorens pers. comm.). On the basis of current knowledge, this species is restricted to a small, remote area of Unallocated Crown Land north-east of Esperance, where the plant is often locally common. Since this area lies close to a large nature reserve, there is a strong likelihood that it also occurs



Figure 1. *Brachyloma brevilobum*. A – flowering plant *in situ*; B – flowering branchlet *in situ*. Voucher K.S. Walkerden KSW 584. Photograph by Katherine Walkerden.

within the boundaries of that reserve. In addition, extensive tracts of similar country lie to the north of its known distribution.

Affinities. *Brachyloma brevilobum* is similar in gross morphology to *B. stenolobum*, differing in the detail of its corolla and gynoecium. In *B. brevilobum*, the corolla lobes are shorter than the tube, 1.0–1.5 mm long, often with inflexed tips, and have papillae that extend along their full length, except sometimes for the inflexed tips. In contrast, *B. stenolobum* has lobes longer than the tube, never with inflexed tips, 2.1–2.7 mm long and with the distal third $\pm$ smooth (Figure 2). The corolla tubes of *B. brevilobum* are also longer than those of *B. stenolobum* (1.5–2.0 mm long *cf.* 1.2–1.6 mm), and the tube is distinctly exserted beyond the sepal apices, whereas in *B. stenolobum* the tubes are barely longer than the sepals. This leads to the characteristic appearance of the flower buds of *B. stenolobum* which taper gradually from the sepal apices to the bud tip. By comparison, the buds of *B. brevilobum* taper more abruptly from a point well



Figure 2. *Brachyloma stenolobum*. Flowering plant *in situ*. Voucher M. Hislop & F. Hort MH 2592. Photograph by Michael Hislop.

above the sepal apex. Whereas *B. brevifolium* usually has a 2-locular (occasionally 3-locular) ovary and a mature fruit that is depressed-globose and slightly compressed laterally, *B. stenolobum* has a mostly 3-locular (occasionally 2- or 4-locular) ovary and a fruit that is globose and circular in transverse section.

Although the foliar characters of the two species are generally very similar, the leaves of *B. brevilobum* tend to be larger (4.0–7.5 mm long and 1.8–3.0 mm wide *cf.* 3.0–4.8 mm long and 1.3–2.0 mm wide in *B. stenolobum*). There is also partial difference in shape, with *B. brevilobum* having either ovate or elliptic leaves and *B. stenolobum* having always elliptic leaves.

Identification. In order to accommodate the new species, the most recent key to the Western Australian species of *Brachyloma* (Hislop & Cranfield 2017: 305–306) requires modification to insert an extra couplet 2A as follows:

1. Corolla red or white; lobes narrowly triangular, acute, adaxially keeled in the upper half, strongly papillate or shortly hairy, at least about the keel (sect. *Lissanthoides*)
2. Corolla red; tube > 10 mm long; 5 hairy appendages inserted close to the base of the corolla tube (Lake Muir–Fitzgerald River)..... **B. baxteri**
- 2: Corolla white; tube to 1.7 mm long; appendages lacking from the corolla tube, 5 hair tufts reflexed into the tube from the lobe bases
- 2A. Corolla lobes longer than the tube, 2.1–2.7 mm long, ± smooth in the upper 1/3, strongly papillate in the lower 2/3, never with inflexed tips; ovary mostly 3- or occasionally 2- or 4-locular; fruit globose, circular in transverse section (Forrestania area; Bremer Range area) **B. stenolobum**
- 2A: Corolla lobes shorter than the tube, 1.0–1.5 mm long, strongly papillate throughout, often with inflexed tips; vary 2- or occasionally 3-locular; fruit depressed-globose, usually slightly compressed laterally and elliptic in transverse section (NE of Esperance) **B. brevilobum**

Conostephium interstans* Hislop, *sp. nov.

Type: north-west of Cascade, Western Australia [precise locality withheld for conservation reasons], 15 August 2015, *W. Archer* 1508151 (*holo*: PERTH 08894523; *iso*: CANB, K, MEL, NSW).

Erect *shrubs* to *c.* 1.2 m high; fire-tolerance of rootstock unknown. Young *branchlets* with a sparse indumentum of very short hairs, < 0.05 mm long or ± glabrescent. *Leaves* helically arranged, glaucous, variably antrorse (usually steeply so); apex shortly mucronate, the mucro innocuous, 0.2–0.4 mm long; base cuneate to rounded; petiole well-defined, 0.5–0.8 mm long, usually with a few hairs on the adaxial surface and margins or ± glabrescent throughout; lamina narrowly obovate, narrowly obtriangular, narrowly elliptic or sometimes linear, 6–11 mm long, 0.9–2.6 mm wide, adaxially convex, margins slightly recurved to strongly revolute, longitudinal axis straight to gently incurved; adaxial surface glabrous, faintly verrucose, without evident venation; abaxial surface slightly paler, with 5–7 raised primary veins, ± closed to openly grooved between the veins, the midrib not differentiated from the rest, glabrous throughout or with sparse short hairs in the grooves; margins glabrous or with stiff antrorse hairs to *c.* 0.05 mm long. *Inflorescence* pendulous or sub-pendulous; axis 1.5–2.3 mm long, hairy, in large part obscured by imbricate bracts. *Axis bracts* 7–8(10), depressed-ovate to broadly ovate, the 2 uppermost 1.2–2.0 mm long and 1.4–2.0 mm wide. *Floral bracts* 4–5, broadly ovate, 2.0–3.5 mm long, 1.8–2.8 mm wide, obtuse, obscurely mucronate. *Bracteoles* ovate to elliptic, 3.2–4.6 mm long, 2.4–3.0 mm wide, obtuse, obscurely mucronate; abaxial surface glabrous, greenish cream, usually with brownish or reddish tinges in the distal half, multi-veined and faintly striate in the distal half; margins minutely ciliate. *Sepals* ovate to narrowly ovate, 4.2–6.2 mm long, 2.2–3.1 mm wide, the outer obtuse to subacute, the inner subacute to acute; abaxial surface glabrous, mostly straw-coloured, with brownish or reddish tinges towards the apex, multi-veined and faintly striate in the distal half; margins ± glabrous or minutely ciliate mostly about the apex with hairs < 0.05 mm long. *Corolla* shed soon after anthesis. *Corolla tube* zygomorphic, essentially fusiform, with the widest part (the bulge) at the middle, 7.0–9.0 mm long, 2.9–3.3 mm wide, with the exposed portion dark purple 0.3–0.5 mm immediately below the lobes; external surface glabrous;

internal surface moderately hairy from the orifice to the base of the bulge with both antrorse and retrorse hairs, glabrous below the bulge. *Corolla lobes* erect to $\pm$ spreading, pale, 0.2–0.5 mm long, 0.2–0.3 mm wide at base, glabrous throughout. *Anthers* 3.4–4.2 mm long, the lobes comprising $1/3$ – $1/2$ the length of the anthers. *Filaments* 1.0–1.3 mm long, 0.4–0.5 mm wide, glabrous, flattened, adnate to the tube at c. the middle; connective dark brown, abruptly and prominently thickened, attached a little below $1/2$ above anther base. *Nectary* annular, 0.1–0.2 mm long. *Ovary* ovoid, 1.0–1.4 mm long, 0.8–1.0 mm wide, glabrous, 4- or 5-locular. *Style* 7.0–9.5 mm long, glabrous. *Fruit* broadly ovoid, 4.0–5.0 mm long, 4.0–4.5 mm wide; apex obtuse to subacute; surface rugose; endocarp $\pm$ smooth. (Figure 3B)

Diagnostic characters. Distinguished by the following combination of characters: leaves adaxially convex, 6–11 mm long, the margins slightly recurved to strongly revolute, the mucros 0.2–0.4 mm long and innocuous; inflorescence axes 1.5–2.3 mm long; corolla shed after anthesis; exposed portion of corolla tube dark purple, smooth, narrowly attenuate below the lobes; corolla lobes 0.2–0.5 mm long, 0.2–0.3 mm wide; anther connectives prominently thickened, dark brown; endocarp $\pm$ smooth.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 15 Aug. 2015, *W. Archer* 1508152 (PERTH); 16 Aug. 2015, *W. Archer* 1608152 (PERTH); 8 Nov. 2015, *W. Archer* 811151 (PERTH); 9 Nov. 2015, *W. Archer* 911151 (CANB, PERTH); 11 Aug. 2024, *K. Walkerden* KSW 642 (CANB, K, PERTH); 11 Aug. 2024, *K. Walkerden* KSW 643 (PERTH); 11 Aug. 2024, *K. Walkerden* KSW 645 (CNS, NSW, PERTH).

Distribution and habitat. Known from a remote area in the district of North Cascade in the Mallee bioregion, where it grows in deep sand in the understorey of open mallee woodland. Associated species

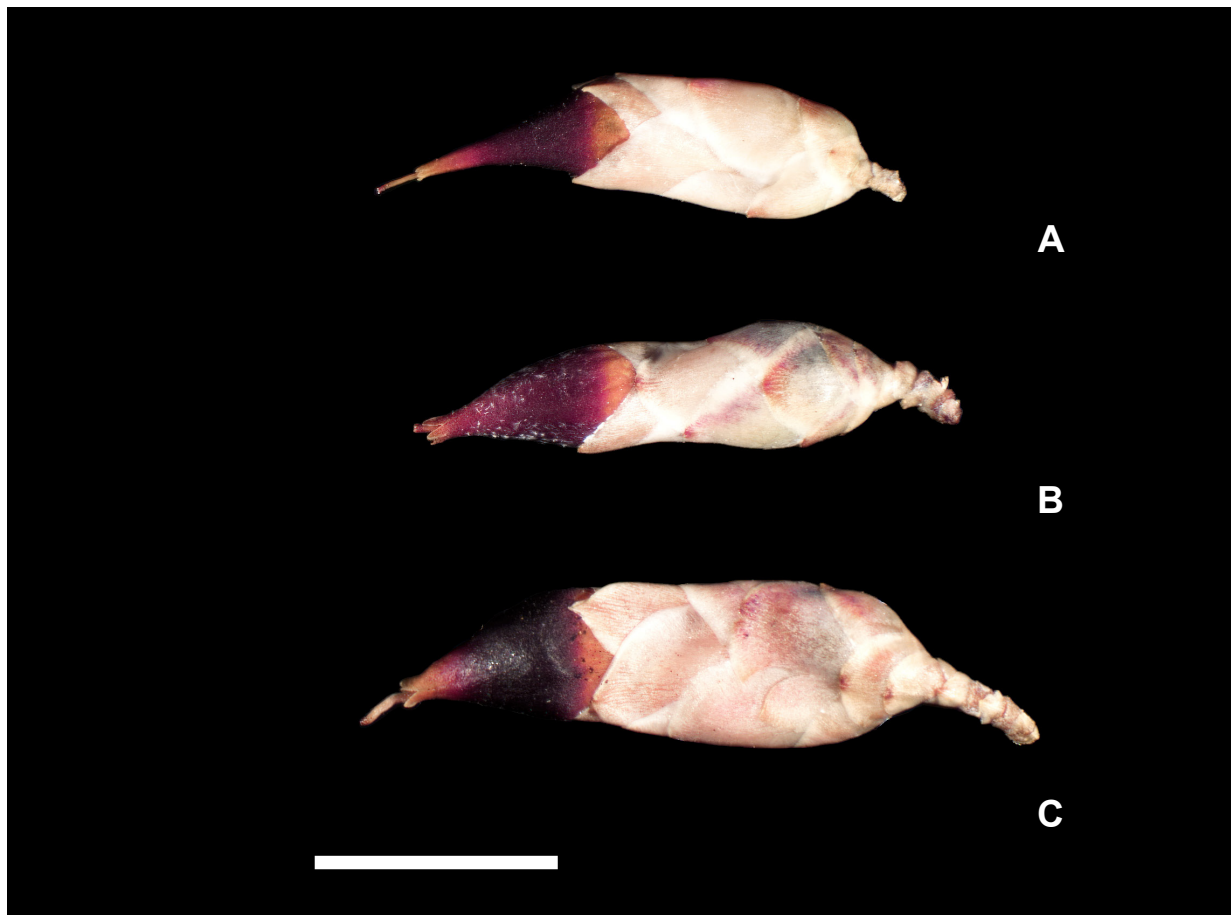


Figure 3. Scanned images of *Conostephium* inflorescences. A – *C. roei*; B – *C. interstans*; C – *C. prolutum*. Scale bar = 5 mm. Vouchers *M. Hislop* 4483 (A), *W. Archer* 1508152 (B), *M. Hislop* 4154 (C).

include *Eucalyptus pleurocarpa*, *Banksia media*, *Phymatocarpus maxwellii*, *Beaufortia micrantha* and *Callitris preissii*.

Phenology. All flowering collections have been made in August with the plants at about mid-flowering stage, which suggests that the main flowering period is between July and September. Mature fruit has been collected in November.

Etymology. From the Latin *inter* (between) and *stans* (standing), a reference to some aspects of the morphology of the new species that are somewhat intermediate between *C. roei* Benth. and *C. prolatum* Hislop.

Conservation status. To be listed as Priority One under Conservation Codes for Western Australian Flora (Tanya Llorens, pers. comm.). The species is currently known from two localities about 12 kilometres apart, both on Unallocated Crown Land. Label information suggests that at least at one site it is locally common. The general area is quite inaccessible and poorly known botanically and there is a likelihood that further survey will show that the plant is more widely distributed than current records suggest.

Affinities. *Conostephium interstans* is most likely to be confused with either *C. roei* or *C. prolatum*. The three species have allopatric distributions, with *C. interstans* occurring in the Lake Tay area, north-west of Cascade, *C. roei* between Ongerup, Newdegate and Lake Magenta, and *C. prolatum* in the south of the Fitzgerald River National Park.

Conostephium roei can be distinguished from the other two species, and indeed all other members of the genus by its deeply ridged fruiting endocarp. This feature is very unusual in the western *Styphelieae*, but another example can be found in *Acrotriche patula* R.Br. (see Hislop 2007: 288–291), which is also the only species among the western members of that genus with a ridged endocarp.

The floral morphology of *C. interstans* is close to that of *C. roei*, with a couple of differences in the upper corolla being the best means of distinguishing between them. Although in both species the corolla tube is relatively narrow below the lobes, in *C. interstans* the upper tube tends to be less strongly zygomorphic and the tapering to lobe bases less gradual (Figure 3A, 3B).

The closest relative of *C. interstans* seems likely to be *C. prolatum* based on overall similarity. The two differ in leaf and inflorescence axis measurements and in the detail of the upper corolla. In *C. interstans*, the leaves are 6–11 mm long and 0.9–2.6 mm wide with an innocuous mucro 0.2–0.4 mm long, while in *C. prolatum* they are 10–22 mm long and 1.8–4.2 mm wide with a coarsely pungent mucro 0.5–1.0 mm long. *Conostephium interstans* has inflorescence axes 1.5–2.3 mm long whereas they are 2.3–3.1 mm in *C. prolatum*. The noticeably narrower upper corolla tube and lobes are another point of difference. In *C. interstans* the upper tube immediately below the lobes is 0.3–0.5 mm wide, and the lobes themselves are 0.3–0.5 mm long by 0.2–0.3 mm wide. This compares with a tube width of 0.5–0.8 mm and lobe dimensions of 0.4–0.6 mm by 0.3–0.4 mm for *C. prolatum* (Figure 3C).

Identification. In order to update the key to species of *Conostephium* (Hislop 2013: 316–318) by the inclusion of *C. interstans*, in addition to the recently described *C. wonganense* Hislop (Hislop 2022: 205–209), modifications are required from the second lead at couplet 11 as follows:

- 11: Internal corolla tube lacking hair tufts; inflorescence axis to 5.2 mm long, usually <5 mm
12. Branchlet indumentum of mixed lengths, the longer hairs 0.5–1.2 mm long; leaves linear, very narrowly triangular or very narrowly elliptic; sepals 6.1–10.8 mm long; corolla lobes 0.4–2.4 mm long
13. Internal corolla tube densely hairy from the base of the lobes to a point adjacent to the top of the ovary, the hairs coalescing into $\pm$ well-defined longitudinal bands below the base of the bulge; inflorescence axis 2.2–3.0 mm long; sepals 6.1–8.4 mm long; corolla lobes 0.4–1.0 mm long; anthers 3.0–4.1 mm long (Wongan Hills area) ***C. wonganense***

- 13:** Internal corolla tube densely hairy from the base of the lobes to the base of the bulge, usually glabrous below the bulge or occasionally with sparse hairs extending to a point *c.* halfway between the bulge and the top of the ovary; inflorescence axis 2.8–5.2 mm long; sepals 8.5–10.8 mm long; corolla lobes 1.2–2.4 mm long; anthers 3.8–5.6 mm long (eastern Darling Range)..... **C. hortiorum**
- 12:** Branchlet indumentum very short, uniform in length, to *c.* 0.1 mm long; leaves obovate, narrowly obovate, narrowly obtriangular, narrowly elliptic or sometimes linear; sepals 3.9–7.5 mm long; corolla lobes 0.2–0.6 mm long
- 14.** Leaves 10–22 mm long; leaf mucros 0.5–1.0 mm long, coarsely pungent; inflorescence axis 2.3–3.1 mm long; upper corolla tube immediately below the lobes 0.5–0.8 mm wide, corolla lobe width 0.3–0.4 mm wide (southern Fitzgerald River N.P.)..... **C. prolatum**
- 14:** Leaves 4.5–11 mm long; leaf mucros 0.2–0.4 mm long, innocuous; inflorescence axis 0.9–2.3 mm long; upper corolla tube immediately below the lobes 0.3–0.5 mm wide, corolla lobe width 0.2–0.3 mm wide
- 15.** Fruiting endocarp deeply ridged; corolla tapering gradually to lobe bases (Ongerup–Newdegate–Lake Magenta area)..... **C. roei**
- 15:** Fruiting endocarp ± smooth; corolla tapering more steeply to lobe bases (NW of Cascade) ... **C. interstans**

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