

## Reinstatement and revision of the genus *Chaetospora* (Cyperaceae: Schoeneae)

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### Abstract

Three species are recognised within the reinstated and recircumscribed genus *Chaetospora* R.Br. *Chaetospora* is lectotypified on *C. curvifolia* R.Br. A new combination, *Chaetospora subbulbosa* (Benth.) K.L.Wilson & R.L.Barrett, is made for *Schoenus subbulbosus* Benth. Lectotypes are selected for *Chaetospora aurata* Nees, *Chaetospora curvifolia* R.Br., *Chaetospora turbinata* R.Br., *Elynanthus capitatus* Nees, *Schoenus subbulbosus* Benth., *Schoenus* subg. *Pseudomesomelaena* Kük. and *Schoenus* sect. *Sphaerocephali* Benth. Two species are endemic to south-western Australia, while the third is endemic to south-eastern Australia. Full descriptions, illustrations and a key to species are provided. All species have anatomy indicative of C<sub>3</sub> photosynthesis.

### Introduction

*Chaetospora* R.Br. is here reinstated as a segregate from *Schoenus* L., with a novel circumscription. *Schoenus* is a nearly globally-distributed genus exhibiting a significant range of morphological variation (Rye *et al.* 1987; Sharpe 1989; Wilson 1993, 1994a,b; Bruhl 1995; Goetghebeur 1998; Wheeler and Graham 2002; Wilson *et al.* 2012; Elliott and Muasya 2017, 2018, 2019; Elliott *et al.* 2019). A significant amount of work has gone into reconstructing a detailed phylogeny for *Schoenus* and allied genera over the past decade, including some re-circumscriptions (Bruhl *et al.* 2008a, 2008b; Viljoen *et al.* 2013; Muasya 2016; Musili *et al.* 2016; Barrett *et al.* 2017, 2019; Larridon *et al.* 2018a, 2018b; A. Gibbs *et al.*, unpubl. data). These phylogenetic studies have repeatedly found that *Schoenus curvifolius* (R.Br.) Poir. and two allied species are not related to *Schoenus* s. str., rather they are more closely allied to *Tricostularia* Nees ex Lehm.

Two of the three species treated here were published originally in *Chaetospora* (*C. curvifolia* R.Br. and *C. turbinata* R.Br.; Brown 1810). A third species was described in *Elynanthus* P.Beauv. ex T.Lestib. by Nees (1841). These species were grouped, along with a few species now known to be unrelated, as *Schoenus* sect. *Sphaerocephali* Benth. (Bentham 1878) or *Schoenus* subg. *Pseudomesomelaena* Kük. (Kükenthal 1938). Steudel (1855) established a new genus *Ptilanthelium* Steud. for *Chaetospora turbinata*, a combination which was for many years confused with the taxon now known as *Ptilothrix deusta* (R.Br.) K.L.Wilson, which is more closely allied to *Mesomelaena* Nees (see Wilson 1994a). Wilson (1994a) pointed out that the genus *Ptilanthelium* was

actually based on the taxon known as *Schoenus turbinatus* (R.Br.) Poir., but there was, at that stage, insufficient evidence for excluding it from *Schoenus s. lat.*

Brown (1810) diagnosed the genus *Chaetospora* on the basis of distichous spikelets; few flowers; empty lower glumes; the presence of short hypogynous bristles (perianth segments); and deciduous styles. Two of the 15 species included by Brown in *Chaetospora* he considered doubtful members. He recognised four informal groups in the genus. Species of group I are now placed in *Anthelepis* R.L.Barrett, K.L.Wilson & J.J.Bruhl, *Chaetospora* and *Schoenus*; the single group II species is now included in *Schoenus*; the two species of group III were transferred to *Gymnoschoenus* Nees; and the two doubtfully included species of group IV are now in *Mesomelaena*.

*Chaetospora* was accepted by numerous authors until sunk within *Schoenus* by Bentham (Brown 1810; Kunth 1816; Schrader 1821, 1832; Chamisso and Schlechtendal 1831; Deitrich 1831; Nees 1835, 1840, 1848; Lehmann 1844; Hooker 1846, 1853, 1859; Steudel 1855; Mueller 1869, 1875; Boeckeler 1874, 1878, 1882; Franchet and Savatier 1878; Bentham 1878), for a wide variety of taxa that differ morphologically in various respects from the core species placed in the genus *Schoenus*. Most such species are now excluded from *Schoenus*, and placed in other genera including *Cyathochaeta* Nees, *Gymnoschoenus*, *Mesomelaena* and *Rhynchospora* Vahl (Appendix 1). Bentham (1878) pointed out that the generic concepts were not satisfactory, and included *Chaetospora* within *Schoenus*, a position that was subsequently almost universally accepted. Since Bentham (1878), most treatments have included the majority of species named in *Chaetospora* by Brown (1810) in *Schoenus*. As there is a surprisingly large number of taxa with names in *Chaetospora*, a full bibliographic synopsis is not presented, but a list of names and their current application is provided in Appendix 1.

A close relationship between *Chaetospora* and *Tricostularia* has been confirmed by molecular data (Zhang *et al.* 2004; Musili *et al.* 2016; Larridon *et al.* unpublished data). Published evidence for this relationship includes the sub-stomatal cavities in the culms lined with distinctly thickened cells in *Chaetospora curvifolia* (Kaphahn 1905). This character is shared with *Tricostularia* (Metcalf 1971), which is similar to, but different from, such cavities in the leaves and culms of *Gymnoschoenus* and *Reedia* (Bruhl 1995). Kaphahn (1905) also identified unusual ×-shaped silica deposits in some cell walls in *C. curvifolia*, and nine vascular bundles in the leaves, whereas many species of *Schoenus* have only three (with the extreme of 21 found in *S. nigricans* L. by Kaphahn). Goetghebeur (1986) described the embryo of *C. turbinata* as Schoenus-type, while *Tricostularia* has a Helothrix-type embryo, as noted by Verbelen (1970).

The genus *Chaetospora* is reinstated here for three species traditionally included in *Schoenus*, all endemic to southern Australia, one of which requires a new combination. A morphological characterisation of *Chaetospora* is provided here in preparation for a new global classification of Cyperaceae (Larridon *et al.* in prep.).

## Methods

Morphological descriptions were prepared primarily based on material held at CANB, MEL and NSW, with additional examination of type specimens at BM, CGE, K and P. Collections at AD, BRI, CGE, HO, K, NE and PERTH were also seen. Type specimens seen directly are indicated by ‘!’ and those seen through *JSTOR Global Plants* (January 2020) are indicated as ‘\*’. All other specimens cited have been seen unless indicated “*n.v.*” All three species have been examined in the field by all authors.

## Taxonomy

***Chaetospora*** R.Br., *Prodr.* 232 (1810), non C.Agardh (1824), non Faurel & Schotter (1965); *Schoenus* sect. *Chaetospora* (R.Br.) Kuntze in Post & Kuntze, *Lex. Gen. Phan.* 507 (1903).

Lectotype species: *Chaetospora curvifolia* R.Br., here designated.

=*Ptilanthelium* Steud., *Syn. Pl. Glumac.* 2(8–9): 166 (1855).

Type species: *Ptilanthelium chauvinii* Steud. (= *Chaetospora turbinata* R.Br.).

=*Schoenus* subg. *Pseudomesomelaena* Kük., *Repert. Spec. Nov. Regni Veg.* 44: 180 (1938).

Lectotype species: *Schoenus curvifolius* (R.Br.) Poir. (= *Chaetospora curvifolia* R.Br.), here designated.

=*Schoenus* sect. *Sphaerocephali* Benth., *Fl. Austral.* 7: 358 (1878) (as *Sphaerocephalae*).

Lectotype species: *Schoenus curvifolius* (R.Br.) Poir. (= *Chaetospora curvifolia* R.Br.), here designated.

*Erect* perennials, forming dense tussocks, with short, woody, branched, pseudobulbous rhizomes. *Culms* not noded, slender, rigid, usually sulcate when dried, smooth. *Leaves* all basal and spirally arranged, with well-developed blade, *pseudopetiole* obscure or absent; blade dorsiventral, flat to channelled above, scaberulous on the margins; ligule absent. *Lowest inflorescence bract* spreading to sub-erect, similar to the leaves, much longer than the inflorescence, upper bracts gradually decreasing in length and often mostly hidden among the spikelets, lamina linear. *Inflorescence* condensed-compound, with several short internodes, consisting of 3–6 close fascicles of branches in the bract axils, but dense and appearing head-like; branches 1 at each node, slightly unequal, not exerted from the sheath, rigid, not flexuous, not compressed, glabrous on the margins. *Spikelets* subsessile, in clusters of 1–3, usually 1- or 3-flowered, the rachis straight, not elongated or flexuous. *Glumes* (floral bracts) 5–9, acute or attenuate, spiro-distichous, puberulent or glabrous, scaberulous, ciliate or denticulate on the margins and midrib; basal 4 or more glumes sterile; upper glume with a bisexual flower. *Perianth segments* 6, ± linear, flat to terete, margins with dense to scattered, white, short, antrorse, ciliate or ciliate-plumose hairs, persistent on the nutlet. *Stamens* 3; filaments glabrous; anthers twisted when dry. *Style* 3-fid, slender, of similar thickness throughout, mostly deciduous, a remnant often remaining on the nutlet. *Nutlet* obovoid, obpyriform or turbinate, with 3 whitish ribs, irregularly reticulate to rugulose or tuberculate at 40× magnification, shortly hispidulous to scabrous or tuberculate at the apex, otherwise glabrous; embryo Schoenus-type. Photosynthetic pathway inferred from anatomy to be C<sub>3</sub>.

**Diagnostic characters:** This genus is characterised by the combination of: pseudobulbous bases (fig. 1), leaves with a well-developed blade; a capitate or turbinate inflorescence subtended by several involucre bracts that greatly exceed the spikelets; the inflorescence branches supporting 1–3 spikelets each, the branches very short and hidden below the spikelets; a non-flexuous, straight rachilla with very short internodes; and flattened to terete, hairy perianth segments and a Schoenus-type embryo. *Chaetospora* differs from *Schoenus* and *Tricostularia* as detailed in Table 1.

**Table 1. Diagnostic morphological characters between *Chaetospora*, *Schoenus* and *Tricostularia*.**

	<i>Chaetospora</i>	<i>Schoenus</i>	<i>Tricostularia</i>
Leaves and bracts	usually with very elongated blades; ligule absent	variously with long blades or reduced to sheaths with a tiny residual blade; ligule present or occasionally absent	usually reduced to the sheath and a tiny residual blade or occasionally with short blade; ligule absent
Inflorescence	compact, branched but appearing head-shaped (capitate to turbinate)	paniculate, often loosely arranged, spiciform, a solitary spikelet, or sometimes head-like	narrow paniculate or paniculate
Rachilla	non-flexuous, straight rachilla with very short internodes	zigzag rachilla with often elongated internodes	non-flexuous, straight rachilla
Anther apiculum	glabrous	indumented or minutely papillose or glabrous	glabrous
Perianth segments	present, whitish, flattened to terete, hairy, not thickened	present or absent, whitish to brown, smooth, barbed, ciliate or plumed, terete, flattened or thickened	present, whitish, flattened and scale-like, hairy, not thickened
Embryo	Schoenus-type	Schoenus-type	Helothrix-type

**Distribution:** A small genus of three species endemic to southern Australia.

**Habitat:** Primarily grows in sandy woodlands and seasonal damplands, also in sand over sandstone, granite, laterite and limestone.

**Conservation status:** All species are widespread and not considered threatened.

**Etymology:** Brown (1810) did not give the derivation of his generic name but it can be inferred to be a combination of the Greek words *chaete* (bristle) and *spora* (a seed), referring to the nutlet surrounded by bristles.

**Typification:** *Chaetospora* has not previously been lectotypified, and *Chaetospora curvifolia* is here designated as the lectotype to allow use of the generic name for the first two species included in the genus by Brown (1810); the other 13 species are not closely related and have been moved to other genera as outlined above. The lectotype is chosen on the basis that *C. curvifolia* is relatively representative of Brown's generic description.

The lectotype of *Schoenus* subg. *Pseudomesomelaena* Kük. is chosen on the basis that Kükenthal (1938) discussed the (superficial) similarity between these species and *Mesomelaena* under *Schoenus curvifolius*.

The lectotype of *Schoenus* sect. *Sphaerocephali* Benth. is chosen on the basis that it fits the series description well (Bentham 1878). The series includes the same three species as subgenus *Pseudomesomelaena* Kük., as

well as *S. submicrostachyus* Kük. (named there as *S. drummondii* Benth.) and *Ficinia filiformis* (Lam.) Schrad. (named there as *S. setifolius* Benth.).

**Notes:** Bruhl and Wilson (2008; listed under *Schoenus*) confirmed that all three species have  $C_3$  anatomy, as first recognized for *C. curvifolia* by Takeda *et al.* (1985).

The pseudobulbous bases appear externally as if the base of the culm is swollen; however longitudinal sectioning of these bases shows that the culms are  $\pm$  uniform in diameter throughout their length or slightly tapering at the very base. The apparent swelling is due to the overlapping leaf sheath bases over the small but woody rhizome, which give a somewhat bulbous appearance (Fig. 1). These persistent leaf sheaths are likely to offer a degree of insulation to the rhizome and associated axillary buds, increasing the ability of each of these species to resprout following fire.

It is possible that the congested inflorescences present a mass floral display that attracts insects that supplement wind pollination, as occurs in a few other sedge species, e.g. in *Cyperus* (Keighery 1984; Wragg and Johnson 2011) and *Rhynchospora* (Costa and Machado 2012).

Each taxon can be distinguished by multiple morphological characteristics as detailed in Table 2 and the key to species.

One previously un-noted difference is in the presence (in *C. curvifolia*) or absence (in the other two species) of sand-binding roots. This root type is defined as being non-mycorrhizal roots whose short or long root hairs bind sand particles, usually forming a strong rhizosheath around the root (e.g. as in *Lyginia barbata* R.Br, Restionaceae; Shane *et al.* 2011). It is one of the nutrient-acquisition features found in herbaceous species growing in dry, nutrient-poor habitats, including various sedges such as *Ficinia nodosa* (Rottb.) Goetgh., Muasya & D.A.Simpson and some species of *Lepidosperma* (Barrett 2013), as well as various species of Poaceae, Restionaceae, Dasygongonaceae and Haemodoraceae (Lamont 1982; Pate and Dixon 1996; Barrett and Dixon 2001; Brundrett 2009; Shane *et al.* 2011; Smith *et al.* 2011; Zemunik *et al.* 2015). The occurrence of this root-type in Cyperaceae remains poorly documented. Its function is similarly poorly understood, but it is known that the presence of root hairs is negatively correlated with mycorrhizal associations and is generally positively correlated with increased nutrient uptake, particularly in dry, low-nutrient situations (Miller *et al.* 1999; Gilroy and Jones 2000; Dolan and Costa 2001; Jungk 2001; Datta *et al.* 2011; Shane *et al.* 2011).

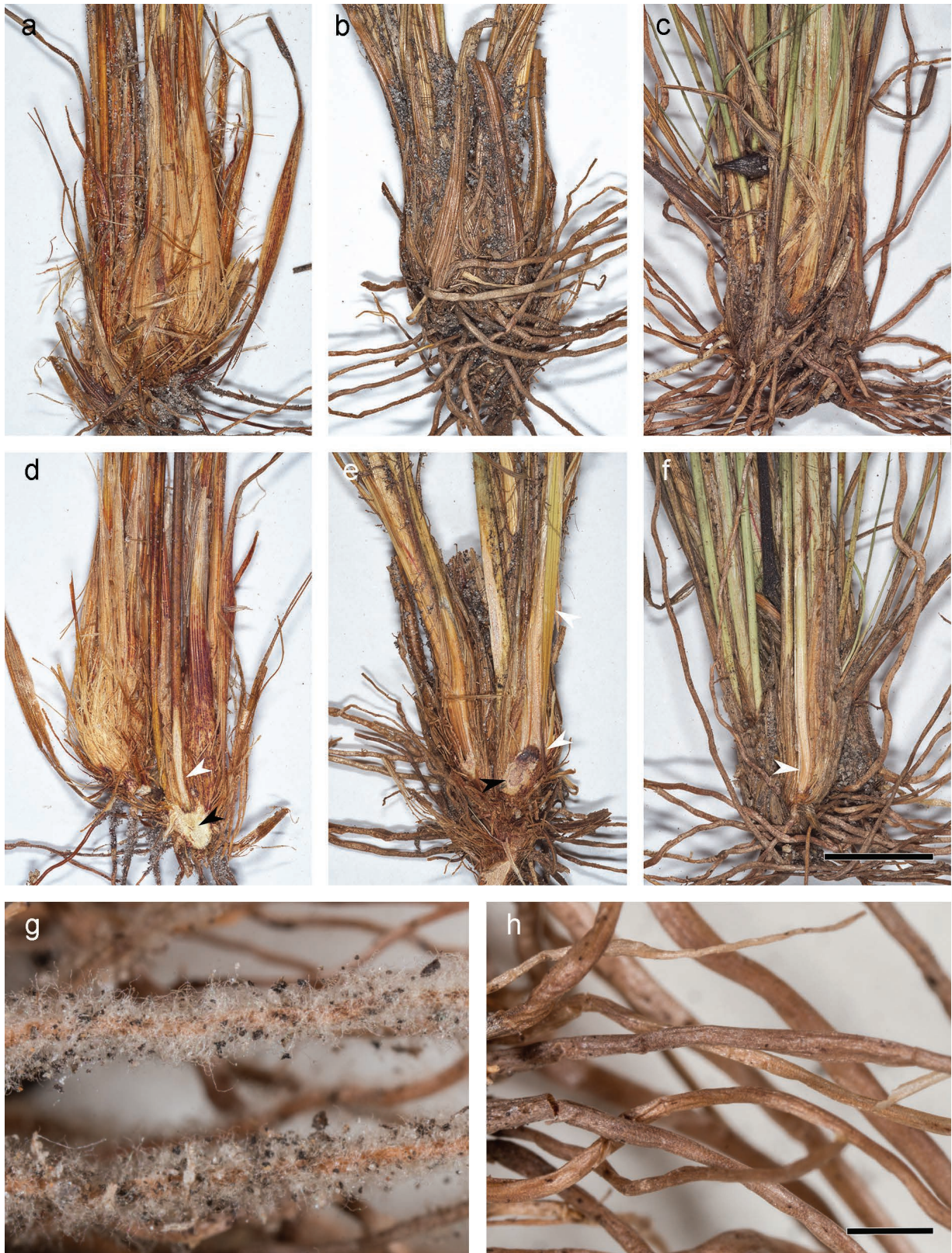
The dense, fine root hairs in *C. curvifolia* appear to be eventually sloughed off with the outer epidermis of the root, leaving a smooth brown surface on the remaining core of the root. However, we have found at least part of the roots covered in persistent root hairs in all specimens examined. Such root hairs have not been observed in the other two species, though they are known in other related taxa in southern Australia; *Schoenus grandiflorus* (Nees ex Lehm.) F.Muell., *Tetraria australiensis* C.B.Clarke, *Tetraria microcarpa* S.T.Blake, *Tetrariopsis octandra* (Nees) C.B.Clarke, *Tricostularia exsul* (C.B.Clarke) K.L.Wilson & R.L.Barrett and *Tricostularia pauciflora* (F.Muell.) Benth. (R.L.Barrett, pers. obs.).

Cluster (dauciform) roots, another distinctive root formation found in sedges in nutrient-poor soils (Lamont 1974), are known in a wide range of members of the tribe Schoeneae (Barrett 2013) but are yet to be observed in *Chaetospora*.

**Table 2. Diagnostic morphological characters in *Chaetospora*.**

	<i>C. curvifolia</i>	<i>C. subbulbosa</i>	<i>C. turbinata</i>
Roots	sand-binding	not sand-binding	not sand-binding
Culm diam. (mm)	0.4–1.6	1.0–2.5	0.6–1.7
Leaf sheath	2–4 cm long; apex scabrous to ciliolate	2–4 cm long; apex scabrous	4–7 cm long; apex scabrous to ciliolate
Inflorescence	globose to depressed globose; dark brown or black	globose to depressed globose; pale brown	obovoid; brown
Spikelets	1-flowered	3-flowered	1-flowered
Perianth segments	1.5–2.0 mm long, flat, margins ciliate; longer than nutlet	0.2–0.4 mm long, compressed to terete, glabrous or ciliate; shorter than the nutlet	1.2–2.0 mm long, compressed to bristle-like, plumose; longer than nutlet
Anther length (mm)	2.0–2.5	2.3–3.1	1.8–2.5
Nutlets	faces irregularly reticulate	faces irregularly tuberculate	faces irregularly faintly reticulate to rugulose





**Fig. 1.** Pseudobulbous bases of plants and roots. A, D (sectioned longitudinally to show rounded woody rhizome). *Chaetospora curvifolia* bases. B, E (sectioned). *C. subbulbosa* bases. C, F (sectioned). *C. turbinata* bases. G. *C. curvifolia* sand-binding roots. H. *C. subbulbosa* non sand-binding roots. Vouchers: A, D: R.L. Barrett 5370 (NE); B, E: K.L. Wilson 2959 (NE); C, F: A.K. Gibbs 49 *et al.* (NE); G: K.L. Wilson 2692 (NSW); H: R. Cranfield & B. Ward WFM 289 (PERTH). White arrows = culms; black arrows = rhizomes. Scale bars: A–F = 1 cm; G, H = 5 mm. Photos A–E by J.J. Bruhl; G, H by R.L. Barrett.



### Key to species of *Chaetospora*

1. Inflorescence ± obovoid; leaf sheath 4–7 cm long (SE Australia)..... *C. turbinata*
- 1: Inflorescence ± globose to depressed globose; leaf sheath 2–4 cm long (SW Australia) ..... 2
2. Flower head usually black (sometimes dark brown); spikelets 1-flowered; perianth segments flat, ciliate, 1.5–2 mm long (about as long as the nutlet) ..... *C. curvifolia*
- 2: Flower head rather pale brown; spikelets 3-flowered; perianth segments compressed to terete, 0.2–0.4 mm long (much shorter than the nutlet) ..... *C. subbulbosa*

*Chaetospora curvifolia* R.Br., *Prodr.* 232 (1810); *Schoenus curvifolius* (R.Br.) Poir., *Encycl. Meth. Suppl.* 2: 251 (1811).

Type citation: '(M.) v.v.'

Lectotype, here designated: Western Australia: King George Sound, Dec. 1802, R. Brown [Bennett No. 6005] (BM 000990995! [plants with pencil annotation 'B' only]). Isolectotype: BM 000990996! [plants with pencil annotation 'B' only]).

=*Chaetospora aurata* Nees, *Ann. Nat. Hist.* ser. 1, 6: 49 (1841).

Type citation: 'ad Flumen Cygnorum lectae, [Drummond].'

Lectotype, here designated: Western Australia: Swan River, 1839, J. Drummond 1<sup>st</sup> coll. (CGE!).

Possible residual syntypes: Western Australia: J. Drummond 899 (syn: BM!, E 00685334\*). Western Australia: J. Drummond 849 [original label looks like 899?] (syn: MEL 2201991!).

Illustrations: Kaphahan (1905; fig. 12); Clarke (1908; tab. LXXVIII, fig. 3); Dell and Bennett (1986; 103, fig. 65i); Bennett and Dundas (1988: 154, fig. 357); Wheeler and Graham (2002; 292, fig.); Keeble (2017; 74, pl.).

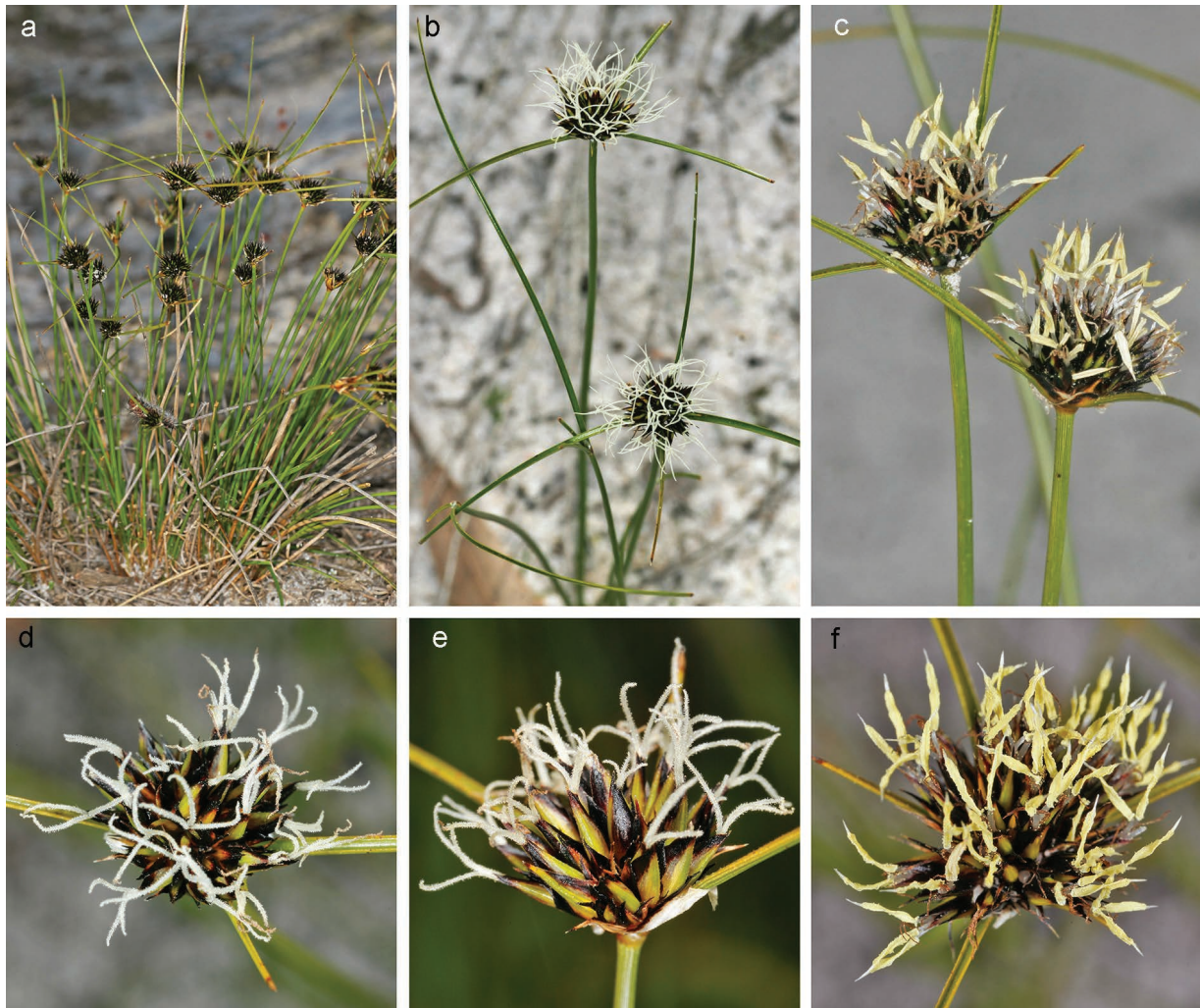
Perennial graminoid *herb*, 13–50 cm high, roots fine, to 10 cm long, sand-binding. *Culms* erect, rigid, arising from a compact, bulb-like underground base or cluster of bases, nodeless, terete or compressed, 0.4–1.6 mm diam., ribbed, glabrous, much longer than leaves. *Leaves* basal, much shorter than the culms, flexuose; sheath 2–4 cm long, reddish brown with broad hyaline margins, striate, dull, base becoming fibrous with age, distally scabrous to ciliate, becoming worn and glabrescent with age, margins glabrous; lamina 5–20 cm long, 0.3–0.9 mm wide, flat to canaliculate, tapering to a fine point, usually markedly curved, margins very finely ciliate; ligule absent. *Basal involucre bracts* 3–6(–8), leaf-like, margins very finely ciliate, 2.5–7 cm long, surrounding and exceeding inflorescence, the base broadly ovate, centre green to black, margins white to translucent. *Inflorescence* an erect, terminal, subglobular head, 7–15 mm across, 5–12 mm long, dark brown or black, with numerous sessile spikelets. *Spikelets* narrow-ovate, acute, 4.7–6.9 mm long, dark brown to black, 1 or 2-flowered. *Glumes* 5–8, lowest 4–7 empty, narrowly ovate, acute or attenuate, dark brown to black (or green around keel), dull, 4.2–5.9 mm long, puberulent or glabrous, outer glumes weakly keeled, scaberulous, ciliate or denticulate on the margins and keel. *Perianth segments* 6, 1.5–2 mm long, flat, white, margins ciliate. *Style* 3-branched, base 2.5–3.1 mm long, branches 1.3–2.5 mm long. *Stamens* 3; filaments 2.6–4.5 mm long, anthers 2.0–2.5 mm long with an apical appendage 0.5–0.7 mm long. *Nutlets* 1.4–1.7 mm long, 1.0–1.1 mm diam., dark brown, obovoid, attenuate at base, 3-ribbed (trigonous), faces irregularly reticulate, apex shortly hairy. Anatomy = C<sub>3</sub>. (Figure 2)

**Diagnostic characters:** Similar to *Chaetospora subbulbosa* but differing in its sand-binding roots; leaf sheaths with scabrous to ciliate apex; dark brown to black spikelets that are usually 1-flowered; perianth segments 1.5–2 mm long, longer than nutlet; anthers 2.0–2.5 mm long; and faces of nutlets irregularly reticulate.

**Distribution:** Widespread in the south-west of Western Australia, from Northampton and Geraldton to east of Esperance.

**Habitat:** Occurs in sand, sometimes over laterite or limestone, often in *Banksia* and jarrah woodland, in heath, or sometimes in winter-wet depressions. Recorded in association with *Anarthria scabra*, *Banksia attenuata*, *B. grandis*, *B. prionotes*, *Caustis dioica*, *Chaetospora subbulbosa*, *Cyathochaeta equitans*, *Eremaea pauciflora*, *Eucalyptus marginata*, *Grevillea preissii*, *Hakea* sp., *Hibbertia hypericoides*, *Isopogon* sp., *Lambertia* sp., *Lepidosperma calcicola*, *L. gladiatum*, *Mesomelaena graciliceps*, *M. pseudostygia*, *M. stygia*, *M. tetragona*, *Schoenus brachyphyllus*, *S. cf. breviculmis*, *S. cygneus*, *S. caespititius*, *S. grandiflorus*, *S. fuscescens*, *S. insolitus*, *S. nitens*, *S. subbarbatus*, *S. sublateralis*, *S. submicrostachyus*, *S. sp. A3* Ciliate Sheaths (K.R. Newbey 9402), *Tetrariopsis octandra*, *Tricostularia aphylla*, *T. neesii* and *Xanthorrhoea preissii*.

**Phenology:** Flowers mainly July–September.



**Fig. 2.** *Chaetospora curvifolia*. A. Habit. B. Inflorescence at anthesis. C, F. Staminate inflorescences. D, E. Stylar inflorescence. Near Perth, Swan Coastal Plain, WA, not vouchered. Photos by R.L. Barrett.

**Selected specimens examined:** WESTERN AUSTRALIA: 5.2 km NE on Mt Ragged track from Fisheries Road, E of Esperance, 12 Sept. 2007, *R.L. Barrett & A. Faber* RLB 4147 (NE, NSW, PERTH); South Coast Highway towards Wellstead, 29 Oct. 2008, *R.L. Barrett & K.L. Wilson* RLB 5370 (NE, NSW, PERTH); Boundary Road, Wattle Grove, 6 Sept. 1976, *R. Coveny* 8067 (NSW, P, PERTH); Hayman Road, Bentley, 4 Sept. 1986, *R.S. Cowan* A 183 (BRI, MEL, NSW, NY, PERTH, US); Redgum Pass, Stirling Range, 6 Sept. 1971, *Hj. Eichler* 20989 (AD, NSW, PERTH); Bellevue, Apr. 1901, *W.V. Fitzgerald* s.n. (NSW 74030); E of Albany, 25.7 km E of Manypeaks along South Coast Highway, 8 Oct. 2003, *J. Hodgson* 806 & *J.J. Bruhl* (BOL, K, MO, NE, NSW, PERTH); Lowden, Preston River, July 1914, *M. Koch* 2575 (MEL, PERTH); Chittering Plot 1, c. 150 m from Chittering Road and 100 m from Smith Road, Bullsbrook, 7 Sept. 2006, *M. Morley & M. Batista* CHITT 01 (AD, NSW, PERTH); near Pointwater [Point Walter], Perth, July 1839, *L. Preiss* [*Pl. Preissiana* 1773] (LD, MEL, NY); 1 km W of Brand Highway along Green Head Road, 2 Oct. 1979, *K.L. Wilson* 2692 (NSW).

**Conservation status:** The species is widespread and locally common with populations of many individuals, the species is considered to be of ‘Least Concern’ (IUCN 2016). Conserved in many National Parks, including Lesueur, Stirling Range and Cape Arid National Parks.

**Etymology:** It is thought that Brown chose the Latin epithet *curvi-* (curved) and *-folius* (leaved), in reference to the distinctly curly involucre bracts below the head-like inflorescence, though the leaves are also somewhat curly, so either feature may have been recognised in this way.

**Typification:** The material is mixed on both Brown sheets [*Bennett* No. 6005] in BM, so lectotypification is required to fix the application of the name. One complete tuft with inflorescence (labelled by K LW with the letter ‘B’) on BM 00990995 belongs to *Chaetospora curvifolia*; while the majority of the material, three pieces labelled ‘A’ by K LW, belongs to *C. subbulbosa*. The sheet labelled as ‘for the public collection’ is also a mixture of these two species: one culm and inflorescence of *C. curvifolia* and one complete tuft with one



inflorescence of *C. subbulbosa*. Brown's description of his *C. curvifolia* could apply to either taxon. To conserve traditional usage of the name, the material labelled 'B' on the *Bennett 6005* sheet is selected as lectotype.

We also choose a lectotype for *Chaetospora aurata* Nees as there are ambiguities in Drummond numbers and duplicate sheets that make it difficult to determine whether there are indeed duplicates of the type collection (Barrett and Wilson 2012).

**Notes:** This species and *C. subbulbosa* are commonly noticed due to the prominent inflorescence bracts spreading from the inflorescence, a feature otherwise rare in south-western Australian sedges.

***Chaetospora subbulbosa*** (Benth.) K.L.Wilson & R.L.Barrett, *comb. nov.*

Basionym: *Schoenus subbulbosus* Benth., *Fl. Austral.* 7: 358 (1878).

Type citation: 'W. Australia. Kalgan River, F. Mueller; Forest Hill, Muir; Swan River, Drummond, 1st coll.; Busselton, Pries.'

Lectotype, here designated: Western Australia: Swan River, [1839], J. Drummond 1st coll. (K 000883761!). Isolectotypes: (BM 001122254!, CGE 05648!, E 00688503\*, E 00688504\*).

Residual syntypes: Western Australia: Kalgan River, 1867, F. Mueller *s.n.* (syn: MEL 2204160!); Forest Hill, J.R. Muir *s.n.* (syn: K 000883762!, MEL 2204161!); Busselton, A. & E. Pries *s.n.* (syn: K 000883763!, MEL 2204162!).

=*Elynanthus capitatus* Nees, *Ann. Nat. Hist.* ser. 1, 4: 48 (1841), *non Chaetospora capitata* Kunth (1816); *Schoenus capitatus* (Nees) F.Muell., *Fragm.* 9: 58 (1875), *nom. illeg. non* Crantz (1766), *non* Pers. (1805), *non* (Kunth) Poir. (1817), *non* Dubois (1833).

Type citation: 'ad Flumen Cygnorum lectae, [Drummond].'

Lectotype, here designated: Western Australia: Swan River, 1839, J. Drummond 1st Coll. (CGE 05648!). Isolectotypes: (B! (fragm. ex CGE), BM 001122254!, E 00688503\*, E 00688504\*, K 000883761!).

=*Schoenus subbulbosus* Benth. var. *junceus* Benth., *Fl. Austral.* 7: 358 (1878).

Type citation: 'W. Australia. Drummond, 1st coll.'

Type: Western Australia: Swan River, 1839, J. Drummond 1st Coll. (holo: K 000883765!; iso: K 000883764!).

*Chaetospora brevisetis auct non* R.Br.: Mueller (1875: 37).

Illustration: Wheeler and Graham (2002; 292, fig.).

Perennial graminoid *herb*, 15–55 cm high, roots fine, to 9 cm long, not sand-binding. *Culms* erect, rigid, arising from a compact, bulb-like underground base or cluster of bases, nodeless, terete or compressed, 1.0–2.5 mm diam., ribbed, glabrous, much longer than leaves. *Leaves* basal, much shorter than the culms, flexuose; sheath 2–4 cm long, reddish brown with broad hyaline margins, striate, dull, base becoming fibrous with age, distally scabrous; lamina 4–15 cm long, 0.3–0.7 mm wide, flat to canaliculate, to slightly involute and appearing terete towards the apex, tapering to a fine point, spiralled or curly distally, margins very finely ciliolate; ligule absent. *Basal involucral bracts* 3–4, leaf-like, margins very finely ciliolate, curly, 2–5.5 cm long, surrounding and exceeding inflorescence, the base broadly ovate, strongly ribbed, centre green to brown, glabrous, margins white to translucent, ciliate. *Inflorescence* an erect, terminal, subglobular head, 9–16 mm across, 6–13 mm long, pale to reddish brown, with numerous sessile spikelets. *Spikelets* narrow-ovate, acute, 5–8 mm long, pale brown, usually 3-flowered. *Glumes* 6–8, lowest 5 or more empty, narrowly ovate, acute or acuminate, pale brown, dull, 4.3–6.0 mm long, sparsely puberulent, keeled, keel often scaberulous, ciliate on the margins. *Perianth segments* 6, 0.2–0.4 mm long, compressed to terete, white, glabrous or with scattered cilia. *Style* 3-branched, base 1.4–2.7 mm long, branches 2.1–2.9 mm long. *Stamens* 3; filaments 2.0–3.5 mm long, anthers 2.3–3.1 mm long with an apical appendage 0.6–0.8 mm long. *Nutlets* 1.4–1.6 mm long, 1.0–1.2 mm diam., brown, obovoid, somewhat attenuate at base, trigonous, 3-ribbed, faces irregularly tuberculate, apex shortly hairy with a persistent style base to 0.15 mm long. Anatomy = C<sub>3</sub>. (Figure 3)

**Diagnostic characters:** Differs from *Chaetospora curvifolia* in its non sand-binding roots; leaf sheaths with scabrous apex; pale brown spikelets that are 3-flowered; perianth segments 0.2–0.4 mm long, shorter than nutlet; anthers 2.3–3.1 mm long; and faces of nutlets irregularly tuberculate.

**Distribution:** Widespread in the south-west of Western Australia, from Perth southwards within 100 km of the coast, to just east of Albany.





**Fig. 3.** *Chaetospora subbulbosa*. A–C. Habit. D. Inflorescence with long subtending bracts. E. Young inflorescence. F. Stylar inflorescence. Near Perth, Swan Coastal Plain, WA, not vouchered. Photos by R.L. Barrett.

**Habitat:** Occurs in sandy, swampy heath or open woodlands, generally in winter-wet depressions or around the margins of granite outcrops. Recorded in association with *Allocasuarina humilis*, *Andersonia simplex*, *Aphelia brizula*, *Baxteria australis*, *Centrolepis strigosa*, *Chaetospora curvifolia*, *Corymbia calophylla*, *Eucalyptus marginata*, *Evandra aristata*, *Lepidosperma drummondii*, *L. cf. pubisquameum*, *Phyllangium paradoxum*, *Restionaceae*, *Schoenus acuminatus*, *S. caespititius*, *S. discifer*, *S. lanatus*, *S. obtusifolius*, *S. racemosus*, *S. rodwayanus*, *S. sublateralis*, *S. sp.* Grey Rhizome (K.L. Wilson 2922), *Tricostularia compressa* and *Xanthorrhoea* sp.

**Phenology:** Flowers recorded for March, April, May, November, probably mainly in autumn. Fruit recorded for August–September.

**Selected specimens examined:** WESTERN AUSTRALIA: c. 300 m down sand track from Albany Speedway, on S side of Albany Highway at northern outskirts of town, 28 Oct. 2008, R.L. Barrett & K.L. Wilson RLB 5347 (NE, NSW, PERTH); Cannington, near Perth, 27 Aug. 1947, S.T. Blake 17987 (BRI, CANB, NSW); 76 km from Albany along road to Walpole, Rocky Gully turnoff, between Kent River and Bow Bridge, 20 Jan. 1979, M.D. Crisp 5310 (CBG, NSW); Cannington Swamp, near Perth, 27 Aug. 1959, Hj. Eichler 15746 (AD); Midland Junction, Sept. 1901, W.V. Fitzgerald s.n. (NSW 74041); W of Denmark, 200 m S of junction of Kent Road and South Coast Highway, 7 Oct. 2003, J. Hodgson 802, J.J. Bruhl & D.M. Hodgson (BOL, NE, NSW, PERTH); 4 miles [6.4 km] S of Mount Barker, 226 miles [362 km] S of Perth, C. Milton's property, 11 Dec 1973, K.F. Kenneally 1128 (PERTH); Capel, 24 Sept. 1948, R.D. Royce 2680 (PERTH); 12.5 km N of Albany on Chester Pass Road, 18 Oct. 1979, K.L. Wilson 2959 (NSW, PERTH); 3 km E of Blackwood River on Brockman Highway, E of Alexandra Bridge, 21 Oct. 1979, K.L. Wilson 3047 (NSW); 5 km N of Windy Harbour on road to Northcliffe, D'Entrecasteaux National Park, 22 Nov. 1994, K.L. Wilson 9023 & K. Frank (NSW, PERTH).

**Conservation status:** The species is widespread and locally common with populations of many individuals, the species is considered to be of 'Least Concern' (IUCN 2016). Conserved in many National Parks, including Stirling Range and Cape Arid National Parks.

**Etymology:** The epithet is from the Latin *sub* (below) and *bulbosus* (bulb), presumably in reference to the swollen bases that are enlarged and bulb-like.

**Typification:** Nees (1841) named *Elynanthus capitatus* from Drummond material collected at the Swan River Colony (South-west Western Australia). Several collections have been located; however, the timing

of publication dictates that only Drummond's first collection series would have been available to Nees. Two Drummond collections of this taxon were made in his first series, each with duplicates, so a lectotype is required and we have chosen the material examined by Nees at CGE as he probably did not see any other material.

Bentham (1878) named *Schoenus subbulbosus* but it is somewhat ambiguous as to whether this should be considered a replacement name for *Elynanthus capitatus* (*non Chaetospora capitata* Kunth), or a new name with a new type. Bentham included *E. capitatus* in synonymy with a question mark, and stated that this was based only on the description, in other words he had not seen the original specimen. We consider this to be sufficient to assume that he was supplying a completely new name. This is also contrasted against *Schoenus drummondii* Benth., from the same publication, where he makes it clear that it is a replacement name for *Chaetospora microstachya* Nees ex Lehm.

We have selected a sheet at K (K 000883761) as the lectotype, noting that this is part of the same collection as the type of *Elynanthus capitatus*, so it is also an isolectotype of that name. Bentham made it clear that he did not see the CGE specimen, so it would be inappropriate to designate a single sheet as the lectotype of both names.

**Notes:** Bentham distinguished his var. *junceus* Benth. from typical *S. subbulbosus* on the basis of it having taller, often flattened culms, more rigid leaves with scarcely any scarious margin (but still with old sheaths disintegrating into fibres), and glumes minutely ciliate and sometimes pubescent, with the inner glumes being more obtuse than in the typical form. These differences are not consistent when a broader range of material is examined, so the variety is not considered worthy of recognition.

***Chaetospora turbinata*** R.Br., *Prodr.* 232 (1810); *Schoenus turbinatus* (R.Br.) Poir., *Encycl. Meth. Suppl.* 2: 251 (1811).

Type citation: '(J.) v.v.'

Lectotype, here designated: New South Wales: sandstone near Port Jackson, Sydney, 1804–5, R. Brown [Bennett No. 6006] (BM 000884723!). Isolectotypes: (BM 000884724!; DBN!, E 00373556\*; E 00373557\*; K 000883760!; [1802–5, s.n.] MEL 2295075!, P 00585293!).

Residual syntype: Botany Bay, 1770, J. Banks & D. Solander s.n. (syn: BM!, NSW 133721!).

=*Ptilantheium chauvinii* Steud., *Syn. Pl. Glumac.* 2(8–9): 167 (1855).

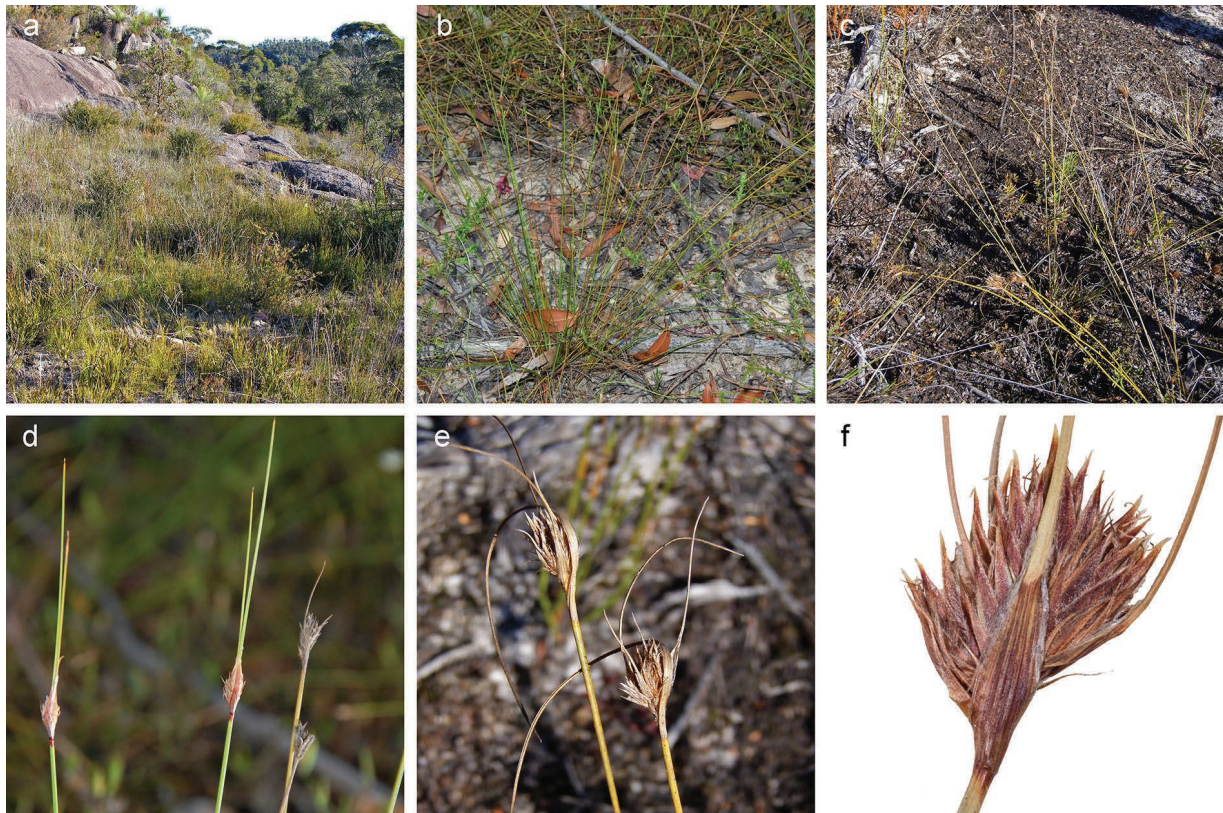
Type citation: 'Ex Hrbo Urville communc. Chauvin. Port Jacks[on].'

Lectotype, designated by K.L.Wilson, *Telopea* 5(4): 613 (1994): New South Wales: Port Jackson, ex Herb. D. D'Urville 67-319, comm. Chauvin (lecto: P 00585291!; isolecto: P 00585292!; possible isolecto: G (2 sheets)!)

Illustrations: Goetghebeur (1986; fig. 8.12.7 D–L); Wilson (1993; 306, fig.); Wilson (1994b; 248, fig. 53p); Fairley and Moore (2002; 341, pl. 1245); Robinson, (2003; 297, fig.); Klaphake (2004; 56, fig.).

Perennial graminoid *herb*, 14–40 cm high, roots fine, to 7 cm long, not sand-binding. *Culms* erect, rigid, arising from a compact, bulb-like underground base or cluster of bases, nodeless, terete to compressed, 0.6–1.7 mm diam., often grooved or striate, glabrous, much longer than leaves. *Leaves* basal, much shorter than the culms, flexuose; sheath 4–7 cm long, straw-coloured with broad hyaline margins, striate, shining, base becoming fibrous with age, distally scabrous to ciliate, margins with scattered cilia; lamina 6–21 cm long, 0.3–0.7 mm wide, canaliculate to involute and appearing terete, tapering to a fine point, slightly curly, margins serrulate, especially in lower half, very finely ciliate; ligule absent. *Basal involucre bracts* 2–6, leaf-like, margins very finely ciliate, 2–10 cm long, surrounding and exceeding inflorescence, the base broadly ovate, pale brown, margins pale brown to translucent. *Inflorescence* an erect, terminal, elongate head, becoming turbinate, 6–10 mm across, 6–17 mm long, brown, with 3–5 fascicles of 2–3 sessile or subsessile spikelets. *Spikelets* narrow-ovate to oblong-ovate, acute, 5.5–8.0 mm long, chestnut brown, 1-flowered. *Glumes* 5–9, lowest 3–5 empty, lanceolate or narrowly ovate to ovate, long narrow-acute, pale red-brown, dull, puberulent, keeled, keel often scaberulous, ciliate to glabrous on the margins, fertile glumes 4.5–6.0 mm long. *Perianth segments* 6, 1.2–2.0 mm long, compressed to bristle-like, plumose, white to red-brown. *Style* 3-branched, base 2.7–3.5 mm long, branches 1.3–1.5 mm long. *Stamens* 3; filaments 4.4–6.2 mm long, anthers 1.8–2.5 mm long with a dark red apical appendage 0.5–0.6 mm long. *Nutlets* 1.3–2.3 mm long, 1.0–1.4 mm diam., dull, grey to red-brown, obpyriform to turbinate or obovoid, attenuate at base, 3-ribbed (trigonous), faces irregularly faintly reticulate to rugulose, apex minutely scabrous and tuberculate. Anatomy = C<sub>3</sub>. (Figure 4)





**Fig. 4.** *Chaetospora turbinata*. A. Habitat, Gibraltar Range, NSW. B, C. Habit. D–F. Inflorescences. Vouchers: B, D: J.J. Bruhl 2703 (NE); C, E: K.L. Wilson 10781 (NSW); F: K.L. Wilson 6514 (NSW). Photos by: A, B, D: J.J. Bruhl; C, E: K.L. Wilson; F: R.L. Barrett.

**Diagnostic characters:** Differs from *Chaetospora subbulbosa* by more slender culms, 0.6–1.7 mm wide; leaf sheaths 38–68 mm long; brown spikelets that are 1-flowered; perianth segments 1.2–2.0 mm long, longer than nutlet; anthers 1.8–2.5 mm long; and faces of nutlets irregularly faintly reticulate to rugulose.

**Distribution:** Widespread in the south-east of Australia, from the Bundaberg district in south-east Queensland to the NSW-Victorian border; extending inland to Gibraltar Range and the Blue Mountains (NSW); localized around the Grampians, Anglesea, Cape Liptrap and Howe Range in Victoria; and widespread in Tasmania, including the Furneaux Islands.

**Habitat:** Occurs in sandy heath or open low woodland over sandstone, gravel or granite, usually in coastal areas. Recorded in association with *Acacia paradoxa*, *A. suaveolens*, *Allocasuarina littoralis*, *A. pusilla*, *A. rigida*, *Amperea xiphioclada*, *Aotus ericoides*, *Banksia ericifolia*, *B. marginata*, *Callitris monticola*, *Calytrix tetragona*, *Cassytha glabella*, *Caustis flexuosa*, *C. pentandra*, *C. recurvata*, *Corymbia gummiifera*, *Dillwynia sericea*, *Epacris impressa*, *Eucalyptus nitida*, *E. obliqua*, *E. pilularis*, *E. williamsiana*, *Eurychorda complanata*, *Hakea decurrens*, *Isopogon ceratophyllus*, *Lepidosperma concavum*, *L. filiforme*, *Leptospermum glaucescens*, *L. myrsinoides*, *L. trinervium*, *Lomatia tinctoria*, *Persoonia* sp., *Petrophile* sp., *Platylobium obtusangulum*, *Restionaceae*, *Schoenus brevifolius*, *S. tenuissimus*, *Tetraria capillaris* and *Xanthorrhoea* sp.

**Phenology:** Flowers mainly August–January. Fruiting recorded for August–February.

**Selected specimens examined:** QUEENSLAND: Cooloolo near Kings Bore Road, c. 0.4 km E of Teewah Creek, near Noosa, 24 May 1972, A.G. Harrold 234 (BRI); Woodgate National Park, near Bundaberg, [?Sept. 1978], C. Sandercoe C110 (BRI); Cooloolo National Park near Rainbow Beach Road, 20 Feb. 1984, C. Sandercoe C334 (BRI). NEW SOUTH WALES: Gibraltar Range National Park, 5.5 km W of Park visitor centre along Gwydir Highway, 200 m S of highway, 3 July 2005, J.J. Bruhl 2355 (BOL, EIU, GENT, MO, NSW); Morton National Park, off track to Tianjara Falls carpark, N of Nerriga (Turpentine) Rd, 31 Dec. 2008, J.J. Bruhl 2703 (BOL, BRI, CANB, EIU, GENT, K, MEL, MO, NE, NSW, PRE); 6.4 km (4 miles) SE of Nabiac at old landing site, 16 Feb. 1965, R. Coveny, P. Hind, R. Hancock RC 7556 (MEL, NSW, PERTH); near Old Aerodrome Road, 10.8 km ESE from turn-off (of Glen Ora Road) on Pacific Highway SE of Nabiac, 21 May 2012, K.L. Wilson 10781 (NSW). VICTORIA: Cape Liptrap – Walkerville South, 19 Mar. 1975, D.C. Cheal 193 (MEL); Anglesea Heath, Alcoa Boundary Road, 27 Dec. 2008, A.K. Gibbs 80 (BOL, BRI, CANB, GENT, K, MEL, MELU, MO, NE, NSW); Grampians National Park, Beside Jimmys Creek Road about 2.3 km from the Halls Gap–Dunkeld



Road, 10 Jan. 2011, *J.A. Jeanes 2519* (CANB, MEL). TASMANIA: 3 km SE of Nye Bay, 1 Feb. 1986, *A. Moscal 12045* (HO, NSW); Flinders Island, Mount Killiecrankie, c. 380 m at 6 degrees N of E of the summit, 23 Sept. 1978, *J.S. Whinray 2424* (MEL); c. 2 km NW of Coles Bay on Bicheno road, 21 Feb. 1986, *K.L. Wilson 6514* (HO, NSW).

**Conservation status:** The species is widespread and locally common with populations of many individuals, the species is considered to be of ‘Least Concern’ (IUCN 2016). Conserved in many National Parks, including Kamay, Royal and Blue Mountains National Parks.

**Etymology:** It is probable that Brown chose the Latin epithet *turbinatus* (turbinate) in reference to the shape of the inflorescence.

**Typification:** There are three specimens of *C. turbinata* in BM that would have been available to Brown: two collected by him, and a collection made by Banks and Solander in 1770 around Botany Bay. Brown’s own collection (the sheet labelled *Bennett 6006* (BM 000884723) bears his own field labels ‘Port Jackson 1804–5’ and is selected as lectotype. Brown’s other collection is the material selected by him for the public collection (BM 000884724); it bears a typed and printed label and a handwritten label in the script of Dryander but no notes in Brown’s script. There is a piece from the Banks and Solander specimen mounted on a sheet with Brown’s manuscript notes. This is labelled as being part of the study-set that Brown took with him on the voyage to Australia.

**Notes:** This species has sometimes been confused with *Ptilothrix deusta* because of the shape of the inflorescence which is subtended by long bracts.

### Acknowledgements

Staff at the following herbaria are thanked for supporting our visits and access to collections: AD, B, BM, BRI, CANB, CGE, DBN, G, HO, K, L, LD, MEL, NE, NSW, P, PERTH. We would like to thank the relevant departments in New South Wales, Tasmania, Victoria and Western Australia for collection permits and assisting with access to reserves. Adele Gibbs is particularly thanked for assessment of molecular relationships within *Schoenus s. lat.* We are grateful to David Mabberley for advice on typification of Robert Brown’s names.

### Declaration of Funding

This research was indirectly supported by several grants from the Australian Biological Resources Study and Bush Blitz to J.J. Bruhl, K.L. Wilson & R.L. Barrett, including ATC210-14.

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Manuscript received 13 April 2020, accepted 19 May 2020

**Appendix 1.** Taxa named in *Chaetospora* (including illegitimate names) and their current names. Bibliographic details can be found in the Australian Plant Names Index (<https://biodiversity.org.au/nsl/services/APNI>) and Kew Checklist of Selected Plant Families (<http://www.ipni.org> and <http://apps.kew.org/wcsp/>) for plants; AlgaeBase (<http://www.algaebase.org>) for algae; and MycoBank (<http://www.mycobank.org>) for fungi.

Name published in <i>Chaetospora</i> R.Br.	Current name
<i>Chaetospora albescens</i> Franch. & Sav.	<i>Schoenus apogon</i> Roem. & Schult.
<i>Chaetospora alpina</i> (R.Br.) F.Muell.	<i>Carpha alpina</i> R.Br.
<i>Chaetospora anceps</i> R.Br.	<i>Gymnoschoenus anceps</i> (R.Br.) C.B. Clarke
<i>Chaetospora antarctica</i> Hook.f.	<i>Schoenus antarcticus</i> (Hook.f.) Dusén
<i>Chaetospora aurata</i> Nees	<b><i>Chaetospora curvifolia</i> R.Br.</b>
<i>Chaetospora aurea</i> Kunth	<i>Rhynchospora corymbosa</i> (L.) Britton
<i>Chaetospora aurea</i> Cham. & Schldl., <i>nom. illeg.</i>	<i>Rhynchospora aristata</i> Boeckeler
<i>Chaetospora avenacea</i> (R.Br.) F.Muell.	<i>Cyathochaeta avenacea</i> (R.Br.) Benth.
<i>Chaetospora axillaris</i> R.Br.	<i>Schoenus maschalinus</i> Roem. & Schult.
<i>Chaetospora axillaris</i> f. <i>terrestris</i> Boeckeler	<i>Schoenus maschalinus</i> Roem. & Schult.
<i>Chaetospora brevisetis</i> R.Br.	<i>Schoenus brevisetis</i> (R.Br.) Poir.
<i>Chaetospora burmanni</i> (Vahl) Schrad.	<i>Tetralia burmanni</i> (Vahl) C.B. Clarke
<i>Chaetospora calostachya</i> R.Br.	<i>Schoenus calostachyus</i> (R.Br.) Poir.
<i>Chaetospora capillacea</i> (Thunb.) Nees	<i>Tetralia capillacea</i> (Thunb.) C.B. Clarke
<i>Chaetospora capillacea</i> Hook.f., <i>nom. illeg.</i>	<i>Tetralia capillaris</i> (F.Muell.) J.M. Black
<i>Chaetospora capillaris</i> F.Muell.	<i>Tetralia capillaris</i> (F.Muell.) J.M. Black
<i>Chaetospora capitata</i> Kunth	<i>Rhynchospora capitata</i> (Kunth) Roem. & Schult.
<i>Chaetospora capitellum</i> (Thunb.) A. Dietr.	<i>Ficinia capitella</i> (Thunb.) Nees
<i>Chaetospora ciliata</i> Schrad. ex Nees	<i>Rhynchospora elatior</i> Kunth
<i>Chaetospora circinalis</i> Schrad.	<i>Tetralia microstachys</i> (Vahl) H. Pfeiff.
<i>Chaetospora clandestina</i> (R.Br.) F.Muell.	<i>Cyathochaeta clandestina</i> (R.Br.) Benth.
<i>Chaetospora compressa</i> (L.) Gray	<i>Blysmus compressus</i> (L.) Panz. ex Link
<i>Chaetospora compressa</i> Nees, <i>nom. illeg.</i>	<i>Schoenus benthamii</i> F.Muell.
<i>Chaetospora concava</i> (R.Br.) Nees	<i>Lepidosperma concavum</i> R.Br.
<i>Chaetospora concinna</i> Hook.f.	<i>Schoenus nitens</i> var. <i>concinna</i> (Hook.f.) Cheeseman
<i>Chaetospora cruenta</i> Nees	<i>Schoenus cruentus</i> (Nees) Benth.
<i>Chaetospora curvifolia</i> R.Br.	<b><i>Chaetospora curvifolia</i> R.Br.</b>
<i>Chaetospora cuspidata</i> (Rottb.) Nees	<i>Schoenus cuspidatus</i> Rottb.
<i>Chaetospora cygnea</i> Nees	<i>Schoenus cygneus</i> (Nees) Nees
<i>Chaetospora dactyloides</i> (Vahl) A. Dietr.	<i>Carpha glomerata</i> Nees
<i>Chaetospora deformis</i> R.Br.	<i>Schoenus deformis</i> (R.Br.) Poir.
<i>Chaetospora deusta</i> (R.Br.) F.Muell.	<i>Ptilothrix deusta</i> (R.Br.) K.L. Wilson
<i>Chaetospora diandra</i> (R.Br.) F.Muell.	<i>Cyathochaeta diandra</i> (R.Br.) Nees
<i>Chaetospora diodon</i> Schrad. ex Nees	<i>Rhynchospora diodon</i> (Schrad. ex Nees) Griseb.
<i>Chaetospora dispar</i> (Spreng.) A. Dietr.	<i>Ficinia secunda</i> (Vahl) Kunth
<i>Chaetospora distachya</i> Nees	<i>Bulbostylis hispidula</i> (Vahl) R.W. Haines
<i>Chaetospora distans</i> F.Muell.	<i>Schoenus rigens</i> S.T. Blake
<i>Chaetospora effusa</i> Schrad. ex Kunth	<i>Pleurostachys sparsiflora</i> Kunth
<i>Chaetospora elongata</i> Nees	<i>Gymnoschoenus anceps</i> (R.Br.) C.B. Clarke
<i>Chaetospora ferruginea</i> Kunth	<i>Rhynchospora brownii</i> Roem. & Schult.
<i>Chaetospora ferruginea</i> (L.) Rchb., <i>nom. illeg.</i>	<i>Schoenus ferrugineus</i> L.
<i>Chaetospora ferruginea</i> Cham. & Schldl., <i>nom. illeg.</i>	<i>Rhynchospora eximia</i> (Nees) Boeckeler
<i>Chaetospora fimbriolata</i> Nees	<i>Tetralia fimbriolata</i> (Nees) C.B. Clarke
<i>Chaetospora fimbriatylodes</i> F.Muell.	<i>Anthelepis undulata</i> (Thwaites) R.L. Barrett, K.L. Wilson & J.J. Bruhl
<i>Chaetospora flexuosa</i> (Thunb.) Schrad.	<i>Tetralia flexuosa</i> (Thunb.) C.B. Clarke
<i>Chaetospora globosa</i> Kunth	<i>Rhynchospora globosa</i> (Kunth) Roem. & Schult.
<i>Chaetospora hexandra</i> Boeckeler	<i>Tetralia macowaniana</i> B.L. Burt
<i>Chaetospora imberbis</i> R.Br.	<i>Schoenus apogon</i> Roem. & Schult.
<i>Chaetospora</i> × <i>intermedia</i> (Brügger) Beck, <i>nom. illeg.</i> , in syn.	<i>Schoenus</i> × <i>scheuchzeri</i> Brügger
<i>Chaetospora japonica</i> Franch. & Sav.	<i>Schoenus apogon</i> Roem. & Schult.



Name published in <i>Chaetospora</i> R.Br.	Current name
<i>Chaetospora laeta</i> Kunze ex Steud.	<i>Rhodoscirpus asper</i> (J.Presl & C.Presl) Lév.-Bourret, Donadio & J.R.Starr
<i>Chaetospora lanata</i> (Labill.) R.Br.	<i>Schoenus lanatus</i> Labill.
<i>Chaetospora laxa</i> Hook.f.	<i>Schoenus rhynchosporoides</i> (Steud.) Kük.
<i>Chaetospora lepidosperma</i> F.Muell.	<i>Schoenus lepidosperma</i> (F.Muell.) K.L.Wilson
<i>Chaetospora lucens</i> Poir.	<i>Schoenus nitens</i> (R.Br.) Poir.
<i>Chaetospora madagascariensis</i> Steud.	<i>Rhynchospora rubra</i> subsp. <i>africana</i> J.Raynal
<i>Chaetospora mauritii</i> Steud.	<i>Rhynchospora brownii</i> Roem. & Schult.
<i>Chaetospora microstachya</i> Nees ex Lehm.	<i>Schoenus submicrostachyus</i> Kük.
<i>Chaetospora nana</i> Nees ex Lehm.	<i>Schoenus nanus</i> (Nees ex Lehm.) Benth.
<i>Chaetospora natans</i> F.Muell.	<i>Schoenus natans</i> (F.Muell.) Benth.
<i>Chaetospora neesii</i> (Lehm.) Boeckeler	<i>Tricostularia neesii</i> Lehm.
<i>Chaetospora nigricans</i> (L.) Kunth	<i>Schoenus nigricans</i> L.
<i>Chaetospora nitens</i> R.Br.	<i>Schoenus nitens</i> (R.Br.) Poir.
<i>Chaetospora oligostachya</i> Boeckeler	<i>Schoenus nigricans</i> L.
<i>Chaetospora oligostachya</i> F.Muell., <i>nom. illeg.</i>	<i>Schoenus bifidus</i> (Nees) Boeckeler
<i>Chaetospora paludosa</i> R.Br.	<i>Anthelepis paludosa</i> (R.Br.) R.L.Barrett, K.L.Wilson & J.J.Bruhl
<i>Chaetospora pedicellata</i> R.Br.	<i>Schoenus pedicellatus</i> (R.Br.) Poir.
<i>Chaetospora paniculata</i> Steud.	?= <i>Asterochaete nitens</i> Kunth
<i>Chaetospora pauciflora</i> Hook.f.	<i>Schoenus pauciflorus</i> (Hook.f.) Hook.f.
<i>Chaetospora pterocarpa</i> Kunth	<i>Rhynchospora barbata</i> (Vahl) Kunth
<i>Chaetospora pterosperma</i> Kunth	<i>Rhynchospora barbata</i> (Vahl) Kunth
<i>Chaetospora pterosperma</i> Nees, <i>nom. illeg.</i>	<i>Rhynchospora barbata</i> (Vahl) Kunth
<i>Chaetospora punctoria</i> (Vahl) A.Dietr.	<i>Neesenbeckia punctoria</i> (Vahl) Levyns
<i>Chaetospora rhynchospermoides</i> F.Phil.	<i>Schoenus rhynchosporoides</i> (Steud.) Kük.
<i>Chaetospora rhynchosporoides</i> Steud.	<i>Schoenus rhynchosporoides</i> (Steud.) Kük.
<i>Chaetospora robusta</i> Kunth	<i>Tetralaria robusta</i> (Kunth) C.B.Clarke
<i>Chaetospora rufa</i> (Huds.) Gray	<i>Blysmus rufus</i> (Huds.) Link
<i>Chaetospora sphaerocephala</i> R.Br.	<i>Gymnoschoenus sphaerocephalus</i> (R.Br.) Hook.f.
<i>Chaetospora spicata</i> Boeckeler	<i>Tricostularia compressa</i> Nees ex Lehm.
<i>Chaetospora striata</i> (Thunb.) A.Dietr.	<i>Ficinia indica</i> (Lam.) H.Pfeiff.
<i>Chaetospora stygia</i> R.Br.	<i>Mesomelaena stygia</i> (R.Br.) Nees
<i>Chaetospora subbulbosa</i> (Benth.) K.L.Wilson & R.L.Barrett	<b><i>Chaetospora subbulbosa</i> (Benth.) K.L.Wilson &amp; R.L.Barrett</b>
<i>Chaetospora tenax</i> Hook.f.	<i>Schoenus brevifolius</i> R.Br.
<i>Chaetospora tendo</i> Hook.f.	<i>Schoenus tendo</i> (Hook.f.) Hook.f.
<i>Chaetospora tenella</i> Rupr.	<i>Carex parva</i> Nees
<i>Chaetospora tenera</i> (Spreng.) A.Dietr.	<i>Schoenus tener</i> Spreng.
<i>Chaetospora tenuissima</i> Steud.	<i>Schoenus apogon</i> Roem. & Schult.
<i>Chaetospora tenuissima</i> Hook.f., <i>nom. illeg.</i>	<i>Schoenus lepidosperma</i> (F.Muell.) K.L.Wilson
<i>Chaetospora tetragona</i> R.Br.	<i>Mesomelaena tetragona</i> (R.Br.) Benth.
<i>Chaetospora triceps</i> Cham. & Schldtl.	<i>Rhynchospora exaltata</i> Kunth
<i>Chaetospora turbinata</i> R.Br.	<b><i>Chaetospora turbinata</i> R.Br.</b>
<i>Chaetospora umbellulifera</i> Boeckeler	<i>Schoenus apogon</i> Roem. & Schult.
<i>Chaetospora vicozensis</i> Schrad. ex Roem. & Schult.	<i>Rhynchospora brownii</i> Roem. & Schult.
<i>Chaetospora villosa</i> (R.Br.) Nees	<i>Schoenus villosus</i> R.Br.
<b>Name published in <i>Chaetospora</i> C.Agardh, <i>nom. illeg.</i> [Algae]</b>	<b>Current name</b>
<i>Chaetospora wiggii</i> (Turner) C.Agardh	<i>Naccaria wiggii</i> (Turner) Endl. ex J.Agardh
<b>Name published in <i>Chaetospora</i> Faurel &amp; Schotter, <i>nom. illeg.</i> [Fungi]</b>	<b>Current name</b>
<i>Chaetospora quezelii</i> Faurel & Schotter	<i>Neochaetospora quezelii</i> (Faurel & Schotter) B.Sutton & Sankaran