



## The importance of the ‘h’ – Parahomonymy in *Trymalium* (Rhamnaceae: Pomaderreae)

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**Abstract:** The history of the species names *Trymalium spatulatum* (Labill.) G.Don from Western Australia and *T. spathulatum* F.Muell., currently known as *Spyridium spathulatum* (F.Muell.) Benth., from South Australia is discussed. Even though the species epithets differ by an ‘h’, it is concluded that the names are so similar that they are likely to be confused and should be treated as homonyms. The name *T. daphnoides* Reissek is available for the latter species and the new combination *S. daphnoides* (Reissek) Kellermann is published, placing the taxon into the correct genus. Lectotypes are chosen for both species.

**Keywords:** Rhamnaceae, Pomaderreae, nomenclature, near homonym, parahomonym, illegitimate names, Australia

### Introduction

During research for the *Flora of Australia* treatment of Rhamnaceae (Thiele *et al.*, in prep.), the following two species names were found to be in conflict and in need of resolution:

- *Trymalium spatulatum* (Labill.) G.Don was one of the first species of Rhamnaceae described and illustrated from Australia (Fig. 1). It was collected by Labillardière during the d’Entrecasteaux expedition and published as *Ceanothus spatulatus* Labill. in his *Novae Hollandiae plantarum specimen* (Labillardière 1805). Until recently, it was accepted that Ostenfeld (1921) was the first to transfer *Ceanothus spatulatus* to *Trymalium* Fenzl. However, during literature searches it was discovered that the new combination had already been published by Don (1839), i.e. the publication date of *T. spatulatum* was more than 90 years earlier. Recent molecular work supports its placement in *Trymalium* (F. Nge, pers. comm.).
- *Trymalium spathulatum* F.Muell. is the basionym of the species name for a well-known South Australian shrub (Fig. 2), currently known as *Spyridium spathulatum* (F.Muell.) Benth. It was named by Mueller (1855) from specimens collected in the Mt Lofty Ranges and on Kangaroo Island. Bentham (1863) transferred the taxon to *Spyridium* Fenzl. Molecular data have confirmed its position in that genus (C. Clowes, pers. comm.).

Rye (1996) and Kellermann *et al.* (2008) stated that the use of the name *Trymalium spatulatum* (Labill.) Ostenf. for the Western Australian taxon was in doubt, as *T. spathulatum* F.Muell. pre-dates it and they are near-homonyms. The discovery of the combination by Don (1839) reverses the chronology: the name of the Western Australian taxon has now been ‘saved’, but the name for the South Australian species, *Spyridium spathulatum*, seems to be illegitimate, as its basionym, *T. spathulatum* F.Muell., was published later than *T. spatulatum* (Labill.) G.Don.

### The confusion

The only difference between these two names is the presence of an ‘h’ in the species epithet for the South Australian taxon. In both instances the epithets refer to the shape of the leaf in the species, i.e. having “a broad rounded upper part tapering gradually downwards into a stalk” (Stearn 1983: 514).

Both *spatulatum* and *spathulatum*<sup>1</sup> (‘spatulate’ and ‘spathulate’) have been used interchangeably by botanists. Botanical glossaries and dictionaries also treat both terms as equivalent (e.g. Craig 1849; Jackson 1900; Stearn 1983; McCusker 1999; Short & George 2013), however it seems that in the late 18<sup>th</sup> and early 19<sup>th</sup> century, the spelling *spatulatum* was preferred in French and English books (e.g. Martyn 1793; Candolle

<sup>1</sup> In the discussion the word is only used in the neuter gender, even though it sometimes refers to the use of the epithet in all three genders, as well, i.e. *spat(h)ulatus*, -a, -um.



**Fig. 1.** *Ceanothus spatulatus* Labill., plate 84 in Labillardière's *Novae Hollandiae plantarum specimen*, drawn by Pierre-Antoine Poiteau; current name: *Trymalium spatulatum* (Labill.) G.Don. — Image reproduced from the Biodiversity Heritage Library.

1813; Lloyd 1826), with *spathulatum* more prevalent in the German literature (e.g. Illiger 1800; Bischoff 1839).

A search in IPNI (2020) resulted in about ten times as many names with the spelling *spathulatum* than *spatulatum*; in the Australian context the ratio was about six to one (APNI 2020). When quoting these names, botanists also frequently made errors, e.g. inserting an ‘h’ into *spatulatum*.

In the *Trymalium* names considered here, that of the Western Australian taxon (correctly *T. spatulatum*) was frequently spelt as “*T. spathulatum*”, but I was not able to find a case where the name of the South Australian species was spelt without the ‘h’. The basionym *Ceanothus spatulatus* was spelt incorrectly by Dietrich (1816), Steudel (1821), Sprengel (1825), Brongniart (1826), Fenzl (1837), Koch & Fintelmann (1859) and Bentham (1863). *Trymalium spatulatum* was spelt with an added ‘h’ by, among others, Ostenfeld (1921), Gardner (1931), Suessenguth (1953) and Green (1981), and this was the usual spelling of the name until Rye (1995, 1996) reviewed *Trymalium* in Western Australia. Despite this, the incorrect spelling *spathulatum* was still used in some recent works (e.g. Mackensen *et al.* 2003; Attiwill & Wilson 2006; Sweedman & Merritt 2006).

There are many other instances of taxon names where spelling of the epithets *spatulatum* or *spathulatum* has been confused:

- The name of the fern *Elaphoglossum spatulatum* (Bory) T.Moore, based on *Acrostichum spatulatum* Bory, was spelt by Moore (1857) with an ‘h’ when transferring the species to *Elaphoglossum* Schott ex J.Sm., and the incorrect spelling was and is still used in many publications (e.g. Roux 2009; Klopper *et al.* 2010).
- The name *Embothrium spathulatum* Cav., a synonym of *Telopea speciosissima* (Sm.) R.Br., was originally published with both spellings: in the protologue of Cavanilles (1798: 60) the main entry gives the epithet with the ‘h’, but on the illustration, plate 388, which was issued simultaneously, it appears without the ‘h’.
- The basionym of the name of the fungus *Hyphodontia spathulata* (Schrader) Parmasto was originally published as *Hydnum spatulatum* Schrader (Schrader 1794), but the spelling of the epithet was later sanctioned by Fries (1821: 423) as *spathulatum*, and is as such conserved with that spelling (Art. F.3.2; May *et al.* 2019).
- The species epithet of the Tasmanian *Senecio spathulatus* Rich. (Richard 1834) was sometimes also mis-spelt as *spatulatus* (e.g. Mueller 1875, 1882). A similar situation as described here for *Trymalium* also exists in *Senecio*: Jessen (1879) published the name *Senecio spatulatus* Jess. for a species from the European Alps.

- Some other examples of names from the Australian flora where these spellings have been used interchangeably are listed below (see APNI 2020; the spelling cited is as originally published): *Acacia spathulata* F.Muell. ex Benth. (a synonym of *A. spathulifolia* Maslin), *Baeckea spatulata* (Turcz.) F.Muell., *Dodonaea viscosa* var. *spatulata* (Sm.) Benth., *Drosera spatulata* Labill., *Myosotis spathulata* G.Forst., *Pimelea spatulata* Labill., *Ptilotus spathulatus* (R.Br.) Poir., *Scholtzia spatulata* (Turcz.) Benth. and *Staurogyne spatulata* (Blume) Koord.

## Taxonomic history

*Ceanothus spatulatus* was collected by Labillardière near Esperance Bay, Western Australia, in Dec. 1792 (Stafleu 1967) and described by him in 1805; type specimens of the species are present in FI, where Labillardière’s herbarium is preserved, as well as in several other institutions. Fenzl (1837) established the genus *Trymalium* and transferred *C. spatulatus* there. To honour the discoverer of the species, he renamed it *T. billardierei* Fenzl — but, as Labillardière’s epithet was available in *Trymalium*, Fenzl created a nomenclaturally superfluous and illegitimate name (Art. 52; Turland *et al.* 2018), which was nevertheless used by botanists until the early 20<sup>th</sup> century.

George Don edited and updated the third edition of Sweet’s well-known *Hortus Britannicus* (Don 1839) after the original author’s death. He published the combination *Trymalium spatulatum* (Labill.) G.Don therein, attributing the name to “Hug.,” i.e. a reference to Fenzl’s (1837) treatment in *Enumeratio Plantarum* [...] *Hügel*. However, as stated above, Fenzl did not publish the combination there, but named the species *T. billardierei*. The correct name for the species was rarely used; it was referenced in a few other publications and usually authorship was incorrectly attributed to “Sweet” (e.g. Steudel 1841; Dammer 1895). Jacques (1844), writing an article about *Trymalium* species in cultivation, used *T. spatulatum* for the Western Australian species; since he also refers to “Hügel” as the author of the name, he presumably used Don (1839) as the basis of his article.

Ostenfeld (1921: 85) realised that “[A]ccording to the rules of nomenclature it is necessary to take up Labillardière’s earlier species name for this well-known shrub”, i.e. that Fenzl (1837) did not use the correct epithet when transferring the species to *Trymalium*. As Ostenfeld was not aware of the combination by Don (1839), he republished the new combination and the name with that author citation, i.e. *T. spatulatum* (Labill.) Ostenf., has been in use until now; but it is a later isonym with no nomenclatural standing (Art. 6.3 Note 2). When republishing this name, Ostenfeld made the same mistake as many other botanists and inserted an ‘h’ into the epithet.

Mueller (1855) described *Trymalium spathulatum* from plants collected in the Mt Lofty Ranges and Kangaroo Island, South Australia; type material can be found in MEL and K. Reissek (1858) apparently realised a possible conflict of epithets and wanted to rectify this by publishing *T. daphnoides* Reissek as a replacement name for the South Australian *T. spathulatum* (Art. 6.11), citing “*T. spathulatum* [...] F.Müll nec Labill.” in synonymy. However, at the time, the name *T. billardierei* was in general use for the Western Australian species and other botanists did not take up Reissek’s name; they possibly deemed it unnecessary, as the names of the two species were not in conflict.

Both species were over the years also assigned to *Cryptandra* Sm. or *Pomaderris* Labill., as the delimitation of the genera of Australian Rhamnaceae was not settled until recently (reviewed by Kellermann 2007).

### Conclusion

As outlined above, the names *Trymalium spatulatum* (Labill.) G.Don and *T. spathulatum* F.Muell. should be treated as homonyms, as the two spellings of the epithets have been used interchangeably for more than 200 years. This is in accord with Art. 53.2 (Turland *et al.* 2018), which states that “[W]hen two or more names of genera or species based on different types are so similar that they are likely to be confused” (i.e. they are parahomonyms; Hawksworth 2010), “they are to be treated as homonyms”. As explained above, there is no doubt that these epithets can easily be confused.<sup>2</sup> The problem is also not limited to *Trymalium*; there are many plant names with the epithets *spatulatum* or *spathulatum*, for which the spellings were and still are confused.

Hence the name of the South Australian species *Trymalium spathulatum* F.Muell. is to be treated as a later homonym of the Western Australian *T. spatulatum* (Labill.) G.Don and therefore illegitimate. The currently used name, *Spyridium spathulatum*, is not a new combination by Bentham (1863), due to the illegitimacy of *T. spathulatum* F.Muell., but is here treated as a replacement name, re-using the original epithet in *Spyridium* (Art. 58.1). This name, *S. spathulatum* F.Muell. ex Benth., would be the correct name of the species in that genus were it not for *T. daphnoides* Reissek having been published based on the same type in 1858 (Art. 6.11). This renders *S. spathulatum* F.Muell. ex Benth. nomenclaturally superfluous and illegitimate, as Bentham should have taken up the epithet *daphnoides* from the earliest legitimate name at species rank. All three names, *T. spathulatum*, *T. daphnoides* and *S. spathulatum*, are homotypic.

Since no legitimate name for the South Australian taxon is available in the genus *Spyridium*, the new combination *Spyridium daphnoides* (Reissek) Kellermann is published below.

### Nomenclature

#### *Trymalium spatulatum* (Labill.) G.Don

*Sweet’s Hort. Brit. Ed. 3*, 137 (1839); Jacq., *Rev. Hort. J. Jard. Amateurs* 6(2): 26 (1844). — *Ceanothus spatulatus* Labill., *Nov. Holl. Pl.* 1: 60, t. 84 (1805), as “*spatulata*”. — *Pomaderris spatulata* (Labill.) G.Don in Loudon, *Hort. Brit.* 84 (May 1830). — *Pomaderris spatulata* (Labill.) Brongn. ex Sweet, *Hort. Brit. Ed. 2*, 113 (Oct.–Dec. 1830), isonym. — *Trymalium billardierei* Fenzl in Endl. *et al.*, *Enum. Pl.* 25 (1837), as “*Billardieri*”, *nom. superfl. & illeg.* — *Cryptandra billardierei* F.Muell., *Syst. Census Austral. Pl.* 60 (1882), as “*Billardieri*”, *nom. illeg.* — *Trymalium spatulatum* (Labill.) Ostenf., *Biol. Meddel. Kongel. Danske Vidensk. Selsk.* 3(2): 85 (1921), as “*spathulatum*”, isonym.

**Type citation:** “in terrâ Van-Leuwin”. **Lectotype (here designated):** Nova Hollandia et Terra van Diemen, J.H.H. de Labiardièrè s.n. (FI006702, ex Herb. Labill., photo seen; Fototeca no. 835; old Herb. Webbium accession no. 035602; with Labillardière’s original manuscript description). **Isolectotypes:** Nova Hollandia, J.H.H. de Labiardièrè s.n. (B-W04713-000, ex Herb. Willd., determined by Reissek, photo seen; FI006703, ex Herb. Desf., Fototeca no. 835/A, old accession no. 035603, photo seen; G-DC; P06883568, ex Herb. Webbium, photo seen; P06883569, ex Herb. Drake, photo seen; TCD0013850, donated by Bory in 1844, photo seen).

*Trymalium billardierei* var. [ $\alpha$ ] *dense-tomentosum* Fenzl in Endl. *et al.*, *Enum. Pl.* 25 (1837), as “*dense-tomentosa*”, *nom. inval.* (Art. 26.2; intended as type variety).

**Distribution.** Endemic to south-western Western Australia, near Mount Barren and between Esperance and Cape Arid, on near-coastal granite outcrops.

**Common name.** Spatulate-leaved trymalium (Don 1839).

**Typification.** The lectotype in FI has Labillardière’s original manuscript descriptions attached to it and contains ample material. Duplicates can be found in several herbaria.

**Note.** Pfeiffer (1871–1875) designated this species as the type of the genus *Trymalium*.

#### *Spyridium daphnoides* (Reissek) Kellermann, **comb. nov.**

*Trymalium spathulatum* F.Muell., *Defin Austral. Pl.* 42 (1855) & *Trans. Proc. Victorian Inst. Advancem. Sci.* 122 (1855), *nom. illeg., non Trymalium spatulatum* (Labill.) G.Don in *Sweet’s Hort. Brit. Ed. 3*, 137 (1839).

<sup>2</sup> This was also confirmed by an informal vote of the *Committee for Vascular Plants* several years ago (R.K. Brummitt, *in litt.*, 26 Sep. 2007).



**Fig. 2.** *Spyridium daphnoides* (Reissek) Kellermann – formerly known as *S. spathulatum* (F.Muell.) Benth. – at Deep Creek Conservation Park, South Australia. **A** Plant growing in open coastal shrubland; **B** conflorescence made up of several dense flower-heads, each subtended by a white felty floral leaf; **C, D** close-up of inflorescences. — A, C J. Kellermann 1001 (AD); B JK 1002 (AD); D JK 998 (AD). Photos by J. Kellermann.

— *Trymalium daphnoides* Reissek, *Linnaea* 29(13): 278 (1858). — *Spyridium spathulatum* F.Muell. ex Benth., *Fl. Austral.* 1: 430 (1863), *nom. superfl. & illeg.* — *Cryptandra spathulata* F.Muell., *Syst. Census. Austral. Pl.* 61 (1882), *nom. illeg.* — **Type citation:** “On the stony ranges near Mount Lofty, in South Australia, and in Kangaroo Island”. **Lectotype (here designated):** Barren stony Ranges near Mount Lofty & Glen Osmond, 2 Mar. 1848, *F. Mueller s.n.* (MEL225572). **Residual syntypes:** Lofty Ranges, South Australia, Dec. 1847, *F. Mueller s.n.* (K000618739); Mount Lofty Ranges near St Vincents Gulf, Nov. 1848, *F. Mueller s.n.* (MEL225573); Third Creek, Nov. Holl. Austral. / Lofty Range, *F. Mueller s.n.* (MEL225576; labelled by Mueller as “*Trymalium* (Pomaderris?) / *spathulatum* FerdMll.” and by Reissek as “*Spyridium daphnoides* / *Trymalium* Reiss.”); Kangaroo Island, *s.coll.* (MEL225577).

*Pomaderris spathulata* Reissek, *Linnaea* 29(3): 278 (1858), *nom. inval. pro syn.*

*Cryptandra obovata* auct. non Hook.f.: Tate, *Handb. Fl. Extratrop. S. Austral.* 97 (1890).

**Distribution.** Endemic to South Australia on southern Eyre Peninsula, Kangaroo Island, the Mount Lofty region and the south-east of the State.

**Common name.** Spoon-leaved spyridium (Canning & Jessop 1986).

**Typification.** There are several specimens available at MEL, where Mueller worked, and one specimen at K. The lectotype has one flowering branch and the label corresponds with the type citation. The syntype specimen from Kangaroo Island was possibly collected by Carl Wilhelmi. MEL225576 was also seen by Reissek when describing *Trymalium daphnoides*.

**Note.** Reissek (1848) also published another similar species name, *Trymalium daphnifolium* Reissek, for specimens collected by James Drummond in Western Australia (but this is not a homonym of *T. daphnoides*).

**Specimens examined by Reissek.** In the protologue of *Trymalium daphnoides*, Reissek (1858) cites two collections: “Austral. merid. (Dr. F. Müller). Foot of the Marble ranges (Wilhelmi).” Some specimens matching these details are listed below, but there might be more collections in other herbaria. As discussed above, the name is typified on original material of *Trymalium spathulatum* and therefore the material cited by Reissek is not type material.

**Specimens seen by Bentham.** When describing *Spyridium spathulatum*, Bentham (1863) stated that he examined the following specimens: “South coast, *R. Brown* ; Lofty Ranges, *F. Mueller* ; foot of the Marble range, *Wilhelmi* ; Kangaroo Island, *Waterhouse*”. As discussed above, the name is homotypic with *Trymalium daphnoides*; hence the specimens examined by Bentham are not type material.

#### Other historic material examined

Port Lincoln, *R. Brown Iter Austral.* 5350 (K000618712); Bay X South Coast, Mar. 1802, *R. Brown Iter Austral.* 5351 (BM); Bay X South Coast, *R. Brown s.n.* (K, “comm. J.J. Bennett”; BM; E00770107, photo seen; MEL225571; NSW811428; NSW811429; P06786091, photo seen); South Coast, *R. Brown s.n.* (CANB278620; CANB278621); Austral. meridion., *Dr. F. Müller s.n.* (LD1025070, photo seen); Foot of the Marble range, Feb. 55, *C. Wilhelmi s.n.* (K000618738, ex Herb. Hooker; TCD0013851, photo seen); Foot of the Marble Ranges / Port Lincoln, 1855, *C. Wilhelmi s.n.* (MEL225568); Foot of the Marble Range, *C. Wilhelmi s.n.* (MEL225569).

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