



## A review of the *Spyridium eriocephalum* complex (Rhamnaceae: Pomaderreae)

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**Abstract:** *Spyridium eriocephalum* Fenzl and related taxa are described and illustrated, following a recent molecular analysis of the genus. The variety of the species endemic to Kangaroo Island is raised to specific rank, as *S. glabrisepalum* (J.M.Black) Kellermann & C.Clowes. The following new taxa are published: *Spyridium latifolium* Kellermann from the Fleurieu Peninsula (S.A.) and *S. undulifolium* Kellermann & S.A.J.Bell from the Goulburn River area (N.S.W.). The population of an entity with historical collections close to the latter species requires re-collection and further examination before a decision can be made as to its status; it is provisionally given the phrase name *Spyridium* sp. Dingo Creek (*T. Tame 1011*) Kellermann. *Spyridium eriocephalum* s.str. is widespread, mainly in mallee areas of southern Australia, extending to the Central Mallee in New South Wales, an occurrence in the Victorian Alps, as well as two locations in Tasmania. A key to all taxa of the species-complex is provided.

**Keywords:** New species, typification, Rhamnaceae, *Spyridium*, New South Wales, South Australia, Tasmania, Victoria

### Introduction

Fenzl (1837) erected the genus *Spyridium* Fenzl with one species, *S. eriocephalum* Fenzl, in his enumeration of Australian Rhamnaceae. The species was described from a collection made along the Derwent River, Hobart, Tasmania. *Spyridium eriocephalum* is quite widespread in mallee areas of south-eastern Australia from Yorke Peninsula, South Australia, to Long Forest, Victoria, and the central mallee region in New South Wales, but also occurs in other habitats: at the type locality in Tasmania it grows in open eucalypt woodland with impoverished soils and in one location in the Victorian Alps in a riparian habitat (Curtis 1956; Canning & Jessop 1986; Walsh & Udovicic 1999; Harden 2000; M. Wapstra, pers. comm. Dec. 2021).

*Spyridium eriocephalum* is morphologically close to *S. phyllicoides* Reissek, but differs by its narrower vegetative leaves with a distinct recurved tip, a dense indumentum of simple and stellate hairs on young branches, as well as the absence of white felty floral leaves, subtending the flower-head. *Spyridium phyllicoides* occurs in South Australia from the cliffs of the Nullarbor Plain throughout Eyre Peninsula, Yorke Peninsula, Kangaroo Island and to the edge of the Murray Mallee. It consistently has 2–4 small floral

leaves, which are usually shorter than the vegetative leaves and have a white indumentum on the upper surface; young branches have an indumentum of only stellate hairs. Both *S. eriocephalum* and *S. phyllicoides* have stipules that are fused for more than half of their length.

*Spyridium eriocephalum* var. *glabrisepalum* J.M.Black was described by Black (1926) from Kangaroo Island. This variety was distinguished from the typical var. *eriocephalum* by its distinctive glabrous and viscid sepals. It is restricted to the eastern half of the island, excluding the Dudley Peninsula.

For some time, collections from the Fleurieu Peninsula, South Australia, were also identified as either *Spyridium eriocephalum* var. *eriocephalum* or var. *glabrisepalum*. However, while they have viscid flower-heads, these specimens have hairy sepals and also broader leaves. During work on the *Flora of Australia* treatment of Rhamnaceae (Kellermann *et al.* (2022) and in prep.), these specimens from near Goolwa, Finnis and Bullock Hill were separated from *Spyridium eriocephalum*. Collections from two locations in the Goulburn River catchment, New South Wales, labelled as *Spyridium* aff. *eriocephalum* or *S.* aff. *scortechinii* were also set aside as being atypical of *S. eriocephalum* and in need of further research.

Clowes *et al.* (2022) undertook a molecular systematic analysis of the genus *Spyridium* and included the two varieties of *Spyridium eriocephalum*, as well as samples from Fleurieu Peninsula and from one of the Goulburn River entities, as *Spyridium* sp. Finnis (J. Kellermann 455) Kellermann and *Spyridium* sp. Wollar (E.J. Constable *s.n.*; NSW16590) Kellermann, respectively. The results clearly showed that *Spyridium eriocephalum* var. *eriocephalum*, *S. eriocephalum* var. *glabrisepalum* and *Spyridium* sp. Wollar are unrelated, as they were placed in separate clades in the analysis of nrDNA. In this paper, we raise var. *glabrisepalum* to species rank as *S. glabrisepalum* (J.M.Black) Kellermann & C.Clowes, and describe the entity from Wollar as the new species *S. undulifolium* Kellermann & S.A.J.Bell.

While the analysis placed *Spyridium* sp. Finnis into the same clade as var. *glabrisepalum* in a polytomy with several other morphologically distinct species, the morphological differences, its disjunct location and unusual habitat justify the description of this phrase name taxon as a new species, *S. latifolium* Kellermann.

The second entity from the Goulburn River area was not included in the sampling of Clowes *et al.* (2022), as there have been no collections for over 30 years. Even though it grows close to *S. undulifolium* (c. 50 km), it exhibits some morphological differences and reportedly occurs in distinctly different habitat (riparian zones on alluvium vs exposed *Triodia* hills on shale soils). Because it is only known from three specimens, all collected in the same location in the 1980s, and since we cannot rule out that it is only a form of *S. undulifolium*, we refrain from describing it formally. Instead, we propose

the phrase name *Spyridium* sp. Dingo Creek (*T. Tame 1011*) Kellermann. The location should be surveyed for plants of this entity, as more collections will enable a better assessment of this phrase name taxon.

## Methods

The study was based on the examination of herbarium specimens from AD, CANB, HO, K, MEL, NSW and W. Fieldwork was undertaken in South Australia, western Victoria and the Wollar region, New South Wales, to collect fresh material, assess habitat and photograph live plants.

## Taxonomy

### 1. *Spyridium eriocephalum* Fenzl

in Endl. *et al.*, *Enum. Pl.* 24 (1837). — *Cryptandra eriocephala* (Fenzl) Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 72 (1857). — *Spyridium eriocephalum* var. *eriocephalum*: J.M.Black, *Fl. S. Austral.* 3: 369 (1926). — **Type citation**: “*Derwent - River.* (Ferd. Bauer.)”. **Holotype**: N. Holl. ad Derwent-River, *F. Bauer s.n.* [actually collected by *R. Brown*] (W0056002, ex Herb. Bauer). **Possible syntypes**: Derwent, 1804, *R. Brown Iter Austral.* 5355 (BM); Derwent, *R. Brown Iter Austral.* 5355 (K); Derwent River, Tasmania, *R. Brown Iter Austral.* 5355 (E00770108); Derwent, *R. Brown s.n.* (K; E00770110; MEL2103316; NSW592497, ex MEL; WELT.SP096065); Van Diemen’s Island, Derwent River, 1804, *R. Brown s.n.* (CANB278617;

### Key to species of the *Spyridium eriocephalum* complex

1. Floral leaves (subtending the flower-head) with dense white indumentum, usually shorter than vegetative leaves; young branches with an indumentum of dense stellate hairs . . . . . ***Spyridium phyllicoides***
- 1: Floral leaves glabrous, green; young branches with simple and stellate hairs
  2. Sepals glabrous outside; flower-heads, bracts, stipules and other parts of the plants quite resinous . . . . . 2. ***Spyridium glabrisepalum***
  - 2: Sepals with an indumentum of simple and stellate hairs outside; plants resinous or not
    3. Leaves ovate, elliptic to obovate (sometimes narrowly), 1–4.2 mm wide; margins recurved to slightly revolute, the lower surface often visible; plants resinous . . . . . 3. ***Spyridium latifolium***
    - 3: Leaves linear to very narrowly ovate or very narrowly elliptic, 0.3–1.1 (–2.3) mm wide; margins strongly recurved or revolute, usually obscuring the lower surface of the leaf; plants not particularly resinous
      4. Leaf apex with a distinctly recurved tip; stipules 1–4 mm long; flowers small, hypanthium tube < 0.8 mm long, sepals 0.5–1 mm long; inflorescence axis 1.5–7 (–10) mm long; seeds covered with dark mottles . . . . . 1. ***Spyridium eriocephalum***
      - 4: Leaf apex straight; stipules 2.5–5 mm long; flowers larger, hypanthium tube > 1 mm long, sepals 0.6–1.3 mm long; inflorescence axis (3.5–) 7–18 mm long; seeds plain with only few dark mottles
        5. Habit erect to spreading; leaves wavy or curved on young shoots; flower-heads 7–14 mm diam. . . . . 4. ***Spyridium undulifolium***
        - 5: Habit lax or drooping; leaves very thin and narrow, straight when young; flower heads small, 4–6 mm diam. . . . . 5. ***Spyridium* sp. Dingo Creek**

NSW592496, ex BM); *s.loc.*, *R. Brown s.n.* (NSW 592495, ex MEL).

*Spyridium uncinatum* Reissek, *Linnaea* 29: 289 (1857). — **Type citation:** “Mallee-Scrub et Murray-Scrub (Dr. F. Mueller)”. — **Lectotype (here designated):** Mallee Scrub, *F. Mueller s.n.* (W0056001, annotated “*Spyridium uncinatum* Reiss & Müll.” by Reissek). **Isolectotype:** Mallee Scrub, [*F. Mueller s.n.*] (MEL2104227, annotated “*Trymalium uncinatum* Ferd Mueller” by Mueller and “*Spyridium uncinatum* Reiss & Müll.” by Reissek). **Residual syntypes:** In the Mallee Scrub towards Lake Tyrell, Victoria, *F. Mueller s.n.* (K000732092, ex Herb. Hooker, with detailed illustration of flower, annotated “*Trymalium uncinatum*” by Mueller); Murray Scrub, [E of the Lofty Ranges, *F. Mueller s.n.*] (MEL2104221, annotated “*Pomaderris* (*Trymal.*) *uncinata* FerdMüll” by Mueller). **Possible syntype:** Ad ostium fluminis Murray, May 1849, *Wuerth* (MEL2104228, annotated “*Spyridium eriocephalum* Fenzl var *uncinatum*” by Mueller).

*Spyridium prostratum* Reissek, *Linnaea* 29: 284 (1857). — *Pomaderris prostrata* F.Muell. ex Reiss., *Linnaea* 29: 284 (1857), *nom inval. pro syn.* — **Type citation:** “Van Diemensland (C. Stuart)”. **Lectotype (here designated):** *Plantae Müllerianae*, Van Diemensland, *C. Stuart* (W0056000, annotated “*Spyridium prostratum* Reiss. & Müll.” by Reissek and “*Pomaderris* (*Trymal.*) *prostrata* F. Müll.” by Mueller). **Isolectotype:** Van Diemens Land, Oct. 1848, *C. Stuart* (MEL2094429, annotated “*Trymalium* (*Pomaderris*) *prostratum* FerdMüll.” by Mueller). **Possible syntypes:** South Esk, *C. Stuart 100* (HO42636, with Gunn number 1044/1842); South Esk River, nr. Evandale, Nov. 1848, [*C. Stuart*] *s.n.* (MEL2104177, with second label “*Habit prostrate*, South Esk River, (83), Oct. 24th, fl all seasons”).

*Trymalium uncinatum* F.Muell., *Second Gen. Rep. Gov. Botanist Veg. Colony* 11 (1854), *nom. nud. & inval.*

*Spyridium phyllicoides auct. non* Reissek: Canning in Jessop & Toelken, *Fl. S. Austral.* 2: 815 (1986), *pro parte*.

*Shrubs* to 1.3 (–1.8) m high; young stems densely pubescent with white to rusty loosely appressed to spreading long simple over shorter stellate hairs, sometimes resinous (esp. the stipules). *Leaves* alternate: *stipules* triangular to broadly triangular, 1–4 mm long, fused for more than half of their length to almost entirely, reddish-brown, glabrous or with hairs along midrib and ciliate towards apex; *petiole* 0.4–1.3 mm long, glabrous; *lamina* very narrowly ovate to linear, 3.2–14 mm long, 0.3–1.1 (–1.6) mm wide, base obtuse to cuneate, or cordate, margins strongly recurved to revolute, apex acute to acuminate, ending in a long brown recurved tip, upper surface glabrous, smooth to muricate, lower surface largely obscured by margins, with dense white stellate hairs, midrib also with long appressed white simple hairs. Densely felty *floral leaves* absent, inflorescence subtending leaves similar to vegetative leaves. *Inflorescence* a dense axillary or terminal head of up to 25 cymosely arranged ± sessile

flowers, 3–7 (–10) mm diam.; inflorescence *axis* 1.5–7 (–10) mm long, medium to densely pubescent with white hairs, sometimes rusty; *bracts* ovate to orbicular, 1.4–2.5 mm long, mostly glabrous, margins ciliate. *Flowers* white. *Hypanthium tube* 0.3–0.8 mm long, 0.8–1.5 mm diam., with sparse medium dense long simple hairs over smaller stellate hairs, base similarly pubescent. *Sepals* 0.5–1 mm long with an indumentum of medium dense to dense, simple and stellate hairs. *Petals* 0.35–0.6 mm long, cucullate, distinctly clawed; limb:claw ratio c. 4:1. *Stamens* subequal to the petals, 0.3–0.5 mm long; *anthers* 0.15–0.2 mm long. *Disc* smooth, glabrous, forming an undulating ring at the summit of the hypanthium tube, which is notched adjacent to the stamens. *Ovary* inferior, carpels 3, summit with dense erect stellate and simple hairs; *style* 0.5–0.9 mm long, entire, slightly 3-lobed at apex. *Fruits* obovoid to ellipsoid, (1.5–) 1.7–2.6 mm long, 1.3–1.5 mm wide, consisting of 3 white papery fruitlets of which usually only 2 develop fully, torus in upper third, fruit wall ± glabrous, dark brown to black; *seeds* flattened obovoid to ellipsoid, 1.3–1.5 (–1.8) mm long, (0.6–) 0.9–1.1 mm wide, fawn to light brown with dark mottles present in some seeds, base dark brown.

#### Fig. 1.

**Illustrations:** G.M. Cunningham *et al.*, *Pl. W. New S. Wales* 477 (1981), photo; J.P. Jessop & H.R. Toelken, *Fl. S. Austral.* 2: 816, Fig. 429C (1986); G.J. Harden, *Fl. New S. Wales* 1: 369 (1990); W.R. Barker, *J. Adelaide Bot. Gard.* 16: 21, Fig. 2D (1995), stipule only; N.G. Walsh & T.J. Entwisle, *Fl. Victoria* 4: 118, Fig. 20F (1999); M.G. Corrick & B.A. Fuhrer, *Wildfl. Victoria* 199, Fig. 696 (2000), photo; M. Wapstra *et al.*, *Tasman. Pl. Names Unravelling* 246 (2010), photo; A. Prescott, *It's Blue Five Pet. Ed. 2*, 146 (2012).

**Distribution & habitat.** The species occurs in South Australia in the Murray Mallee, east of the Mt Lofty Ranges, where it is conserved in Monarto, Ferris McDonald, Mt Boothby and Ngarkat Conservation Parks (C.P.), as well as in the Billiat Wilderness Protection Area (W.P.A.), with scattered occurrences north of Adelaide, in Stansbury Scrub on Yorke Peninsula and one record from near Kingscote on Kangaroo Island. In western Victoria it is recorded from south of the Murray River in Murray-Sunset National Park (N.P.) to the Big Desert and Little Desert areas, with a record near the Grampians; *Spyridium eriocephalum* also grows in the Long Forest area near Melton and Bacchus Marsh, and has been collected from the Inglewood-Wedderburn area and the Moroka River in Alpine N.P. In New South Wales the species only occurs in a Central Mallee area between north of Mt Hope and Griffith, where it is conserved in Round Hill and Pulletop Nature Reserves (N.R.). In Tasmania the taxon occurs on the eastern shore of the Derwent River, the type locality, in and around East Risdon State Reserve (S.R.), Hobart, and is also recorded from near Evandale, south of Launceston, possibly along the South Esk River (Fig. 7).



**Fig. 1.** *Spyridium eriocephalum* at East Risdon S.R., Tasmania (A, C), the Big Desert, Victoria (B, F, G), and Monarto C.P., South Australia (D, E). **A** Plant growing in low-nutrient sandy loam at East Risdon; **B** bush growing in deep sand in the Big Desert; **C, D** flowering and fruiting branches; **E** branch with inflorescence; **F, G** close-up of flower-heads. — B J. Kellermann 918 & F. Nge, D, E J. Kellermann 635, F JK 913 & FN, G JK 909 & FN. Photos by M. Wapstra (A, C) and J. Kellermann (B, D–G).

*Spyridium eriocephalum* mainly grows in mallee scrub and woodland, as well as heathland, usually in sandy soils, ranging from deep sand to sandy loam and sand with outcropping rocks or rocky gravel (described as sandstone, siltstone, limestone and laterite). It also sometimes occurs along rivers and in riparian habitats in similar soils.

**Phenology.** Flowering throughout the year, mainly Aug.–Nov.

**Affinities.** The species is similar to *Spyridium phyllicoides* and *S. leucopogon* F.Muell., but differs in the absence of white floral leaves and narrower, almost linear vegetative leaves with a distinctly recurved tip. Differences to other species within the *S. eriocephalum* complex are listed below.

**Typification.** In the protologue, Fenzl (1837) listed a specimen from Derwent River, collected by Ferdinand Bauer. Only one specimen of this collection is known at W, where Fenzl worked, and this is here accepted as the holotype of the name (see Kellermann 2020).

Together with Robert Brown, Bauer travelled in Australia as the artist on Flinders' voyage from 1801 to 1805. During Feb.–Aug. 1804, Brown went to the River Derwent region in Tasmania (Vallance *et al.* 2001); however, Ferdinand Bauer never visited this area. As such the collector information on the holotype label must be in error. We assume that Brown shared duplicates of his Tasmanian collections with Bauer and that the type specimen was accidentally labelled as collected by “Ferd. Bauer”.

Mabberley (2021) mentions that Bauer also illustrated plants grown from seed collected by Brown in Tasmania, after their return to London; we do not believe that the W specimen originated from cultivated material, as it is quite a large specimen from a mature shrub and very similar to the material collected by Brown in habit and flowering stage. Brown collected specimens of *Spyridium eriocephalum* at Risdon Cove or along the River Derwent (Burbidge 1955; Vallance *et al.* 2001; Kellermann 2004), where the species is still found today.

The lectotype of *Spyridium uncinatum*, designated above, is a small specimen at W that was annotated by Reissek and also has his manuscript notes attached to it, which are similar to the description in the protologue; the specimen is almost certainly a duplicate of MEL2104227. The lectotype of *S. prostratum* is a large specimen and was also annotated by Reissek, as well as Mueller.

**Conservation status.** *Spyridium eriocephalum* is listed as Endangered under the Tasmanian *Threatened Species Protection Act 1995* (TSS 2011). Presently not listed, its status in New South Wales should be assessed, as well as the Victorian locations outside the sandy mallee areas.

**Notes.** This widespread species is quite variable in leaf length and width, inflorescence diameter, as well as

size, which varies from small almost prostrate shrublets to large and upright plants. Walsh & Udovicic (1999) note that plants from non-mallee areas tend to be taller, have longer leaves and stipules, and are more viscid than mallee plants. Some records of *Spyridium eriocephalum* have thicker and shorter, more terete leaves, but these could not be correlated to different habitat types.

Some unusual specimens are potential hybrids with other species of *Spyridium* and show intermediate characteristics, e.g. with *S. subochreatum* (F.Muell.) Reissek, the specimen of which has much wider leaves (to 2.3 mm) than *S. eriocephalum* (M.G. Corrick 6347; AD, MEL).

Records of this species from Eyre Peninsula and most records from Yorke Peninsula are actually *Spyridium phyllicoides*, as they all have small floral leaves with a white indumentum on the upper surface. It was previously stated that there are old *S. eriocephalum* collections from near Cataract Gorge in northern Tasmania (TSS 2011), but these have all been re-determined as *S. vexilliferum* (Hook.) Reissek.

**Common name.** Heath spyridium (FNCV 1923; Canning & Jessop 1986), heath dustymiller (Wapstra *et al.* 2005–).

**Etymology.** The epithet is derived from the Greek ἐριον (*erion*, wool) and κεφαλή (*cephale*, head) (Stearn 1983), on account of the hairy flower-heads.

#### **Selected specimens examined** (c. 270 seen)

SOUTH AUSTRALIA. Rd from Monarto South E to ‘Kornheim’, 14 Jan. 1977, *C.R. Alcock* 5535 (AD, G); 20 km N of Blanchetown, 30 July 1981, *R. Bates* 966 (AD, HO); 5 km E of Linwood, 1 km S of Light River (R.), 14 June 1999, *R. Bates* 53008 (AD, HO, I, MEL, UTEP, WU, Z); Hundred of Senior, Bordertown, 10 Jan. 1964, *D. Hunt & M. Welbourn s.n.* (AD); Intersection of Ngarkat Hwy and Kirra Rd, S side of Kirra Rd, 28 Aug. 2019, *J. Kellermann* 832 & *F. Nge* (AD); Stansbury Scrub, 28 Aug. 1983, *W.L. Quinn* 58 (AD, COLO, PRE, SMC); 1 mile [1.6 km] E of Malinong hall, c. 45 km SE of Murray Bridge, 18 Nov. 1959, *M.C.R. Sharrad* 408 (AD); Murray Mallee, 0.5 km SSW of Wynarka on rd to Moorlands, 50 m E of rd, 25 Sep. 1995, *F. Udovicic* 225 (AD, B, CANB); N boundary of Mt Boothby C.P., 300 m W of rd from Coonalpyn, 20 m S from Richardson Rd into park, 12 Oct. 1995, *F. Udovicic* 326 (AD, CANB, MEL, PERTH, E, SI).

NEW SOUTH WALES. Round Hill Faunal Reserve (Res.) near Mt Hope, 2 Nov. 1966, *Anon. s.n.* [Mus. Appl. Arts & Sci.] (MEL, NSW); Nombinnie Mallee, Site 12, 15 Nov. 1985, *J. Benson s.n.* (NSW); Pulletop N.R., c. 20 km SW of Rankins Springs, 12 Nov. 1975, *M.D. Crisp* 1456 (AD, CBG, US, BISH); Garoolgan turn-off, 22 km E of Rankins Springs to West Wyalong, 19 Nov. 1975, *M.D. Crisp* 1599 (AD, CBG, US); 2 km E of Shepherds Hill, Euabalong West, 1 Dec. 1973, *G.M. Cunningham* 1603 & *L. Milthorpe* (NSW); 27 miles [43.5 km] from Lake Cargelligo, towards Mt Hope, 13 Sep. 1966, *M.E. Phillips s.n.* (AD, CBG); Pulletop N.R.,

32 km N of Griffith, 25 Mar. 1975, I.R. Telford 3862 & P. Ollerenshaw (CBG, US, BISH).

VICTORIA. Long Forest Nature Conservation Res., c. 300 m along the main tk leading N from the main carpark, just N of just over the culvert crossing the watercourse on both sides of the tk, 9 Jan. 2017, C. Clowes CC515 (AD, MELU); 38 km N of Broken Bucket bore & 52 km S of Murrayville on Nhill rd, 1 Oct. 1979, M.G. Corrick 6347 (AD, MEL); Big Desert, beside Murrayville-Yanak Rd about 13.9 km S of Murrayville, 25 Nov. 2010, J.A. Jeanes 2486 (CANB, K, MEL, S); Little Desert N.P., Kiata Campground area, junction of Salt Lake Tk with Campground Tk, 29 Sep. 2017, N.G. Karunajeewa 1613 (AD, CHR, MEL, PAL, S); Big Desert State Forest, 100 m W of Murrayville-Nhill Rd, c. 12 km S of Mallee Hwy, 6 Oct. 2019, J. Kellermann 913 & F. Nge (AD, MEL); Big Desert, 10 m west of Murrayville-Nhill Rd, 13 km South of Mallee Hwy, flat between dunes, 6 Oct. 2019, J. Kellermann 918 & F. Nge (AD, B, KUN); Little Desert N.P., at corner of Cooack Settlement Rd, 7 Oct. 2019, J. Kellermann 947 & F. Nge (AD, DMHN); Little Desert N.P., Cooack Settlement Rd, 1 km S from park corner towards Cooack Rd, 7 Oct. 2019, J. Kellermann 949 & F. Nge (AD, MEL, NY, SI); Birdcage Flora and Fauna Res., E side along Amy Johnson Hwy, 23 Sep. 2014, R.W. Purdie 9667 (CANB, MEL); Little Desert, 6 km along W-E rd, c. 10 km N of Mitre Lake, 14 Oct. 1995, F. Udovicic 332 (AD, CANB, MEL); Verge of Moroka R. below gorge tk, near where jeep tk from Doolans Plains approaches river, 28 Oct. 1985, N.G. Walsh 2437 (MEL).

TASMANIA. East Risdon N.R., ridge top directly above *Eucalyptus morrisbyi* gully, 15 May 1988, R. Burns 32 (CBG); Risdon N.R., above Tommy Bight, Jan. 2005, M.F. Duretto 1850 (AD, B, HO, KRA, MEL); Lindisfarne, 2<sup>nd</sup> bay from Natone, 2 July 1948, M. Hart s.n. (HO); East Risdon N.R. on ridge opposite Zinc Works, 16 Nov. 2005, M. Visoiu 94 (HO, K, MEL); Shag Bay, East Risdon N.R., 15 Jan. 2016, M. Wapstra & E. Wapstra WAP01 (AD, MELU); Slope S of Tommys Bight, East Risdon N.R., 15 Jan. 2016, M. Wapstra & E. Wapstra WAP02 (AD, MELU); Shag Bay, top side of walking tk, S side of bay, 22 Jan. 2010, M. Wapstra 1045 (HO).

## 2. *Spyridium glabrisepalum* (J.M.Black) Kellermann & C.Clowes, *comb. & stat. nov.*

*Spyridium eriocephalum* var. *glabrisepalum* J.M.Black, *Fl. S. Austral.* 3: 369 (1926). — **Type citation:** “Kangaroo Island”. **Lectotype (here designated):** Cygnet R.[iver], K.[angaroo] I.[sland], Oct. 1908, H.H.D.G.[riffith] s.n. (AD98132269, with annotation “Sent Melb as No. 3”). **Isolectotypes:** ?MEL.

*Shrubs* 0.6–1.2 m high; young stems densely pubescent with white loosely appressed to spreading stellate hairs, resinous. *Leaves* alternate: *stipules* triangular, 1.1–2.5 mm long, fused for half of their length or more, reddish-brown, glabrous, very resinous esp. when young; *petiole* 0.5–1.5 mm long, with stellate and longer simple hairs that continue along midrib; *lamina* narrowly ovate to narrowly elliptic or narrowly obovate, or linear, 3.8–9.8 mm long, 0.8–3 mm wide, base cuneate, sometimes obtuse or cordate, margins recurved to revolute, apex acute to acuminate, with a distinctly recurved tip, upper surface glabrous, smooth to papillose, lower surface often obscured by margins, with dense white stellate hairs,

midrib also with long appressed white or sometimes rusty simple hairs. Densely felty *floral leaves* absent, inflorescence subtending leaves similar to vegetative leaves. *Inflorescence* a dense axillary or terminal head of up to 20 cymosely arranged ± sessile flowers, 2.5–6.5 mm diam., quite resinous; inflorescence *axis* 2–10 mm long, medium to densely pubescent with longer white hairs, over small white stellate hairs; *bracts* ovate, 1.1–2.3 mm long, mostly glabrous, margins entire. *Flowers* white to cream. *Hypanthium tube* 0.5–0.7 mm long, 1–1.4 mm diam., glabrous, with sparse long simple hairs at base. *Sepals* 0.6–0.9 mm long, glabrous. *Petals* 0.4–0.6 mm long, cucullate, distinctly clawed; limb:claw ratio c. 4:1. *Stamens* subequal to the petals, 0.3–0.65 mm long; *anthers* 0.15–0.2 mm long. *Disc* smooth, glabrous, forming an undulating ring at the summit of the hypanthium tube, notched adjacent to the stamens. *Ovary* inferior, carpels 3, summit with dense erect stellate and simple hairs; *style* 0.6–0.9 mm long, entire, slightly 3-lobed at apex. *Fruits* obovoid to ellipsoid, 2.3–2.6 mm long, 1.5–1.7 mm wide, consisting of 3 white papery fruitlets, torus almost apical, fruit wall ± glabrous, with a few long simple hairs, dark brown to black; *seeds* flattened obovoid to ellipsoid, 1.3–1.5 mm long, c. 1 mm wide, fawn to light brown with dark mottles, base dark brown.

### Fig. 2.

**Distribution & habitat.** The species is endemic to eastern Kangaroo Island, South Australia (but not the Dudley Peninsula), in the area around Cygnet River, Kingscote, Birchmore and Haines; it is conserved in Beyeria C.P. *Spyridium glabrisepalum* grows in mallee on lateritic and sandy soils, mainly on roadsides (Fig. 7).

**Phenology.** Flowering is recorded in the second half of the year, with the majority of collections from June, Oct. and Nov.

**Affinities.** The species can be distinguished from *S. eriocephalum* by its glabrous sepals and wider leaves. Plants are also much more resinous, especially on inflorescence and flowers, stipules and young stems.

**Typification.** One specimen is known from J.M. Black’s herbarium in AD that fits the protologue, but Black annotated on the specimen that he sent a duplicate to Melbourne. While this duplicate has not been located, we still assume that it may be present in the MEL collection. The specimen at AD is selected as the lectotype of the name.

**Conservation status.** The species is listed as Endangered in the South Australian *National Parks and Wildlife Act 1972* and as Vulnerable in the federal *Environment Protection and Biodiversity Conservation Act 1999* (Taylor 2008, 2012).

**Common name.** Macgillivray spyridium (Taylor 2008).

**Etymology.** The epithet is derived from the Latin *glaber* (without hair) and *sepalum* (sepal), and refers to the glabrous sepals of the species.



**Fig. 2.** *Spyridium glabrisepalum*. **A** Plant growing near Playford Hwy, Kangaroo Island; **B** flowering branches; **C, D** young flower-heads; **E** older flower-head. — A, B, E T.S. Te 1238; C D.J. Duval 3560; Photos: South Australian Seed Conservation Centre.

### *Selected specimens examined* (c. 40 seen)

SOUTH AUSTRALIA. Beyeria C.P., along E boundary, 10 m from fire tk, 9 Dec. 2003, P.J. Ainsley 62, M. Oborn, J. Currie, T.L. Durber & D. Taylor (AD, K); Playford Rd, S side of rd res., 0.9 km E of Bomb Alley Rd, 18 Dec. 2018, C. Clowes & M.W. Malcolm CC551 (AD, MELU); N side of Kingscote-American R. rd, E of Ben Johnson's corner, 14 July 1984, G. Jackson 1656 (AD); Junction of MacGillivray Hill & American R. rd, 29 Sep. 1984, G. Jackson 1663 (AD, MSC); Willsons Rd, off Hog Bay Rd, W of Johnsons Corner, 13 Oct. 2009, J. Kellermann 484, 485 & I.M. Kellermann Williams (AD, BAA, MEL); Beyeria C.P., on walking tk, 13 Oct. 2009, J. Kellermann 486, I.M. Kellermann Williams & K.L. Kellermann Williams (AD); Near Sect. 194, Hundred of Haines, Hog Bay Rd, 16 June 1984, B.[M.] Overton 33 (AD, BA); Hundred Line Rd, approx. 6 km S of racecourse bridge over Cygnet R., bottom of Kohinoor Hill, 17 Dec. 1993, B.M. Overton 2405 (AD); Birchmore Rd, 5 km S of Playford Hwy, W roadside, 28 Apr. 2002, B.M. Overton 2853 (AD); Ben Johnson's Corner, triangle of vegetation in NW corner of 5 ways intersection from Beyeria C.P., corner Hog Bay Rd, Willsons Rd, 27 Sep. 1995, F. Udovicic 232 (AD, CANB, MEL, PERTH).

### 3. *Spyridium latifolium* Kellermann, *sp. nov.*

*A* *Spyridio glabrisepalo* (*J.M.Black*) Kellermann *foliis inflorescentibusque latioribus et sepalis hirsutis differt.*

**Holotypus:** Fire track on E side of Bullock Hill Conservation Park, c. 50 m from Haines Rd, on W side of track, 1.5 m tall shrub, spindly, 3 Feb. 2008, J. Kellermann 455 & A. Kellermann (AD213824).

**Isotypi:** B, CANB, K, KUN, MEL, MO, NY, SI.

*Spyridium* sp. Finniss (*J.Kellermann 653 & F. Nge*) Kellermann in C.Clowes *et al.*, *Austral. Syst. Bot.* 35: 107 (2022).

*Shrubs* to 1.5 m high; young stems densely pubescent with white to rusty, loosely appressed to spreading, long simple over smaller stellate hairs. *Leaves* alternate; *stipules* triangular to broadly triangular, 1.2–3 mm long, fused for about half of their length, sometimes less, light brown to reddish-brown, glabrous or with hairs along midrib; *petiole* 0.4–1.3 mm long, glabrous; *lamina* narrowly elliptic to narrowly ovate or ovate, 6–12 mm long, 1–4.2 mm wide, base obtuse to cordate, margins recurved to slightly revolute, apex acute to bluntly

acute, ending in a dark mucro, upper surface glabrous, smooth to muricate or shortly hispid, lower surface visible or obscured by margins, with dense white stellate hairs, long appressed white simple hairs along midrib and leaf margins, a few along secondary veins. Densely felty *floral leaves* absent, inflorescence subtending leaves similar to vegetative leaves. *Inflorescence* a dense axillary or terminal head of up to 22 cymosely arranged  $\pm$  sessile flowers, 3–9 (–11) mm diam., very resinous, esp. when young; inflorescence *axis* 1.5–7 (–14) mm long, densely pubescent with white stellate hairs and few simple hairs, sometimes rusty; *bracts* ovate, 1.2–2 mm long, mostly glabrous, margins ciliate. *Flowers* white. *Hypanthium tube* 0.3–0.5 mm long, 0.5–1.3 mm diam., with sparse long simple hairs over smaller stellate hairs, base similarly pubescent. *Sepals* 0.6–0.8 mm long with an indumentum of sparse simple over smaller stellate hairs, esp. in middle of sepal. *Petals* 0.4–0.5 mm long, cucullate, distinctly clawed; limb:claw ratio c. 3:1. *Stamens* subequal to the petals, c. 0.3 mm long; *anthers* 0.15–0.2 mm long. *Disc* smooth, glabrous, forming an undulating ring at the summit of the hypanthium

tube, which is notched adjacent to the stamens. *Ovary* inferior, carpels 3, summit with dense erect stellate and simple hairs; *style* 0.3–0.6 mm long, entire, slightly 3-lobed at apex. *Fruits* obovoid to ellipsoid, c. 2.3 mm long, c. 1.6 mm wide, consisting of 3 white papery fruitlets of which often only 1–2 develop fully, torus almost apical, fruit wall  $\pm$  glabrous, dark brown; *seeds* flattened ovoid to ellipsoid, 1.3–1.4 mm long, 1–1.1 mm wide, fawn to light brown with dark mottles throughout, base dark. **Fig. 3.**

**Illustrations:** N. Gemmell, *Native Veg. Strathalbyn Plains* 23 (1987); G.R.M. Dashorst & J.P. Jessop, *Pl. Adelaide Plains & Hills* 100, plate XLIII.8 (1990), as *Spyridium eriocephalum* (also subsequent editions; voucher: *D.E. Murfet s.n.*, AD).

**Distribution & habitat.** This species occurs in the south-east of the Mt Lofty Ranges in the area between Strathalbyn, Goolwa and Victor Harbor, South Australia, in dense scrub and mallee woodland with a heathy understorey on sand and loamy sand (Fig. 7).



**Fig. 3.** *Spyridium latifolium* at Bullock Hill C.P., the type locality (A, C, D), and Winery Road Reserve (B), Fleurieu Peninsula, South Australia. **A** Habit; **B** flowering branches; **C** twig with older inflorescences; **D** close-up of flower-head. — B J. Kellermann 661 & F. Nge, D JK 653 & FN. Photos by J. Kellermann.





**Fig. 4.** **A** The controlled burn in part of Bullock Hill C.P., the type locality (3 Nov. 2020). **B** Seedling of *Spyridium latifolium* in the recently burned area (27 Aug. 2021). — B J. Kellermann 1011 & L. Williams. Photos by Department of Environment and Water (A) and J. Kellermann (B).

**Phenology.** Flowers mainly in Aug.–Nov.

**Affinities.** This species differs from *Spyridium eriocephalum* in its wider leaves (1–4.2 mm vs 0.3–1.1 (–1.6) mm in *S. eriocephalum*), which are narrowly elliptic to ovate in outline, with the lower surface being clearly visible (vs linear leaves, which are usually revolute, i.e. the margins obscuring most of the lower surface). *Spyridium glabrisepalum* differs in its smaller flower-heads, glabrous sepals and slightly narrower leaves (0.8–3 mm). The inflorescences of *S. latifolium* are also slightly larger, with a diameter of 2–9 (–11) mm (vs 3–7 mm in *S. eriocephalum* and 2.5–6.5 mm in *S. glabrisepalum*).

**Conservation status.** The conservation status of this species should be assessed. It is conserved in Bullock Hill C.P. and Scott Creek C.P. and also grows in old railway reserves.

**Notes.** The species seems to be quite short-lived and to rely on bushfires for regeneration, similar to some other species of *Spyridium*. When the type specimen was collected in 2008, *S. latifolium* was very frequent in Bullock Hill C.P. (J. Kellermann 455 & A. Kellermann), but ten years later, hardly any plants remained at the type locality (J. Kellermann 653 & F. Nge). In Aug. 2021, about 9 months after a controlled burn in Nov. 2020, an abundance of seedlings was observed in the recently burned area (J. Kellermann 1011 & L. Williams). The seedlings differ in morphology from adult plants, i.e. stipules are inconspicuous and the indumentum on most parts of the plants is almost absent. Where present, the indumentum consists of the typical stellate hairs of Pomaderreae. While the leaves are quite wide, they are of the correct shape and have the characteristic recurved margins (Fig. 4).

**Etymology.** From the Latin *latis* (wide) and *folium* (leaf) on account of the species' distinctive leaves that are much wider than typical *Spyridium eriocephalum*.

**Selected specimens examined** (c. 85 seen)

SOUTH AUSTRALIA. 2 miles [3.2 km] N of Goolwa, 15 Nov. 1943, *H.M. Cooper s.n.* (AD); Finniss Oval Res., 7 Sep. 2007, *D.J. Duval 831* (AD); Finniss Oval Res., 25 Nov. 2010, *D.J. Duval 2055* (AD, MEL); Bullock Hill C.P., SE corner, c. 10 m N of Haines Rd, 3 Feb. 2008, *J. Kellermann 448* & *A. Kellermann* (AD, BM, MEL, P, W); Fire tk on E side of Bullock Hill C.P., c. 50 m from Haines Rd on W side of tk, 1.5 m tall shrub, spindly, 3 Feb. 2008, *J. Kellermann 456* & *A. Kellermann* (AD, M); Bullock Hill C.P., along tk in middle of park, 14 Oct. 2018, *J. Kellermann 653* & *F. Nge* (AD, CANB); Res. between Winery Rd and railway tk, Currency Creek, near access gate, 14 Oct. 2018, *J. Kellermann 661* & *F. Nge* (AD, KUN, SI); Bullock Hill C.P., E of fire tk in middle of park, 27 Aug. 2021, *J. Kellermann 1011* & *L. Williams* (AD, seedlings); Currency Creek railway, 3 Feb. 1989, *D.E. Murfet s.n.* (AD); Scott Creek C.P., 28 Feb. 2000, *A.C. Robinson* & *S.J. Pillman BS117-1526* (AD); On W verge of Echo Park Rd, between Nine Mile Rd intersection and Finniss-Milang Rd, Milang, 26 Oct. 2000, *R. Taylor 570* (AD).

**4. *Spyridium undulifolium* Kellermann & S.A.J. Bell, sp. nov.**

*A Spyridium eriocephalo Fenzl foliis junioribus undulatis et plerumque linearibus, apicibus rectis et floribus hypanthio longiore differt.*

**Holotypus:** Adjacent Wollar-Mudgee Rd, Wollar, near railway tunnel and opposite 'Cortina' property, 19 Nov. 2015, *S. Bell* & *C. Driscoll s.n.* [1] (NSW).

**Isotypi:** AD272766, B, CANB, K, MEL, NY, SI.

*Spyridium* sp. Wollar (*E.F. Constable s.n.*, NSW16590) Kellermann in C. Clowes *et al.*, *Austral. Syst. Bot.* 35: 107 (2022).

*Shrubs* to 0.5 m high; young stems pubescent with medium to dense white to rusty appressed long simple hairs over smaller stellate hairs. *Leaves* alternate: *stipules* narrowly triangular to triangular, 2.2–5 mm long, almost entirely fused, reddish-brown, glabrous, but with hairs along midrib and ciliate towards apex; *petiole* 0.5–1.2 mm long, glabrous; *lamina* linear to very narrowly elliptic, 6.8–12 mm long, 0.5–1.1 mm wide, when young wavy or curved, base narrowly cuneate to cuneate, margins strongly recurved to revolute, acuminate, ending in a long brown drawn-out tip, upper surface appearing glabrous but usually minutely muricate to shortly hispid, lower surface mainly obscured by margins, with dense white stellate hairs, midrib also with long appressed white simple hairs. Densely felty *floral leaves* absent, inflorescence subtending leaves similar to vegetative leaves. *Inflorescence* a dense axillary or terminal head of up to 20 cymosely arranged  $\pm$  sessile flowers, 7–14 mm diam.; inflorescence *axis* (3.5–) 7–13 mm long, densely pubescent with white stellate and simple hairs; *bracts* ovate, c. 3 mm long, mostly glabrous, simple hairs along

middle, margins ciliate. *Flowers* white. *Hypanthium tube* 1–1.2 mm long, 1.3–1.6 mm diam., with sparse long white simple hairs, base similarly pubescent. *Sepals* 0.7–1.3 mm long, with an indumentum of medium dense to dense white simple and stellate hairs. *Petals* 0.5–0.6 mm long, cucullate, distinctly clawed; limb:claw ratio c. 4:1. *Stamens* subequal to the petals, 0.5–0.6 mm long; *anthers* 0.15–0.2 mm long. *Disc* smooth, glabrous, forming an undulating ring at the summit of the hypanthium tube, which is distinctly notched adjacent to the stamens (almost appearing as separate lobes). *Ovary* inferior, carpels 3, summit with dense erect stellate and simple hairs; *style* 0.8–1 mm long, entire, slightly 3-lobed at apex. *Fruits* obovoid to ovoid, c. 2.8 mm long, c. 1.6 mm wide, consisting of 3 white papery fruitlets of which often only 2 develop fully, torus almost apical, fruit wall  $\pm$  glabrous, dark brown to black; *seeds* flattened obovoid to ellipsoid, c. 1.9 mm long, c. 1.2 mm wide, fawn to light brown with only a few dark mottles present, base dark brown.

**Fig. 5.**



**Fig. 5.** *Spyridium undulifolium* at the type locality, a rocky hillside above Wollar Road, New South Wales. **A** Plants growing below spinifex (*Triodia scariosa*); **B** habit when growing in the open; **C** plant growing in and protected by spinifex; **D** flower-head and new growth with wavy young leaves; **E** close-up of flower-head. — Photos by S.A.J. Bell.

**Distribution & habitat.** The species is known only from two adjacent north-facing dry hills near Wollar, New South Wales, in low stunted open woodland of *Eucalyptus punctata*, *E. albens* and *Allocasuarina verticillata*, amongst *Triodia scariosa*, *Xanthorrhoea glauca*, *Hibbertia cistoidea* and *Acacia ixiophylla* on skeletal soil (yellow brown sand) over shale (Fig. 7). This hill is distinctive within the wider locality due to the poor canopy development across landscapes that otherwise support well developed open forests and woodlands. The dominance of *Triodia scariosa* in particular is very rare in the region.

**Phenology.** Flowering specimens have been collected in July, Sep., Nov. and Dec.

**Affinities.** The species differs from *Spyridium eriocephalum* in its long linear revolute leaves that are slightly wavy when young (Fig. 5D) and have a straight apex (vs distinctly recurved apex in *S. eriocephalum*). The inflorescences of the new species are larger (7–14 mm vs 3–7 mm diameter); the hypanthium tube and sepals are also much longer (1–1.2 mm and 0.7–1.3 mm vs 0.3–0.8 mm and 0.5–1 mm in *S. eriocephalum*, respectively) and the seed surface is light brown with only few dark mottles (vs densely mottled). *Spyridium glabrisepalum* and *S. latifolium* can easily be distinguished by their much broader leaves.

**Conservation status.** Only a single population extending across two adjacent low hills is currently known, largely on Crown land, but also on adjacent private property. No threats are apparent at this stage; however, existing and proposed new open cut coal mines are a feature of the wider locality (DPIE 2020b).

**Notes.** Extensive field surveys carried out for several vegetation mapping projects across private lands between Bylong and Ulan, and in the nearby Goulburn River N.P. and Wollemi N.P., have failed to uncover other populations or habitats similar to the type location. Soils at the Wollar site have been mapped as part of the ‘Benjang variant b’ colluvial soils landscape by DPIE (2020a), which comprises undifferentiated sediments of the Singleton Coal Measures and occurs extensively in nearby Wollemi N.P. and Munghorn Gap N.R. Further inspection of these landscapes elsewhere may uncover new populations of *Spyridium undulifolium*, and such areas should be the focus for targeted surveys.

**Etymology.** The specific epithet is a contraction of the Latin *undulatus* (wavy) and *folius* (leaf), in reference to the distinctly wavy young leaves.

#### **Specimens examined**

NEW SOUTH WALES. Adjacent Wollar-Mudgee Rd, Wollar, near railway tunnel and opposite ‘Cortina’ property, 19 Nov. 2015, *S. Bell & C. Driscoll s.n.* [2] (AD, DMHN, NE, NSW); 20 Dec. 2016, *S. Bell & C. Driscoll s.n.* [CC566] (CANB, DMHN, MEL, MELU); Wollar, Sandy Hollow, 16 Sep. 1948, *E.F. Constable s.n.* (MEL, NSW); Near Wollar, S

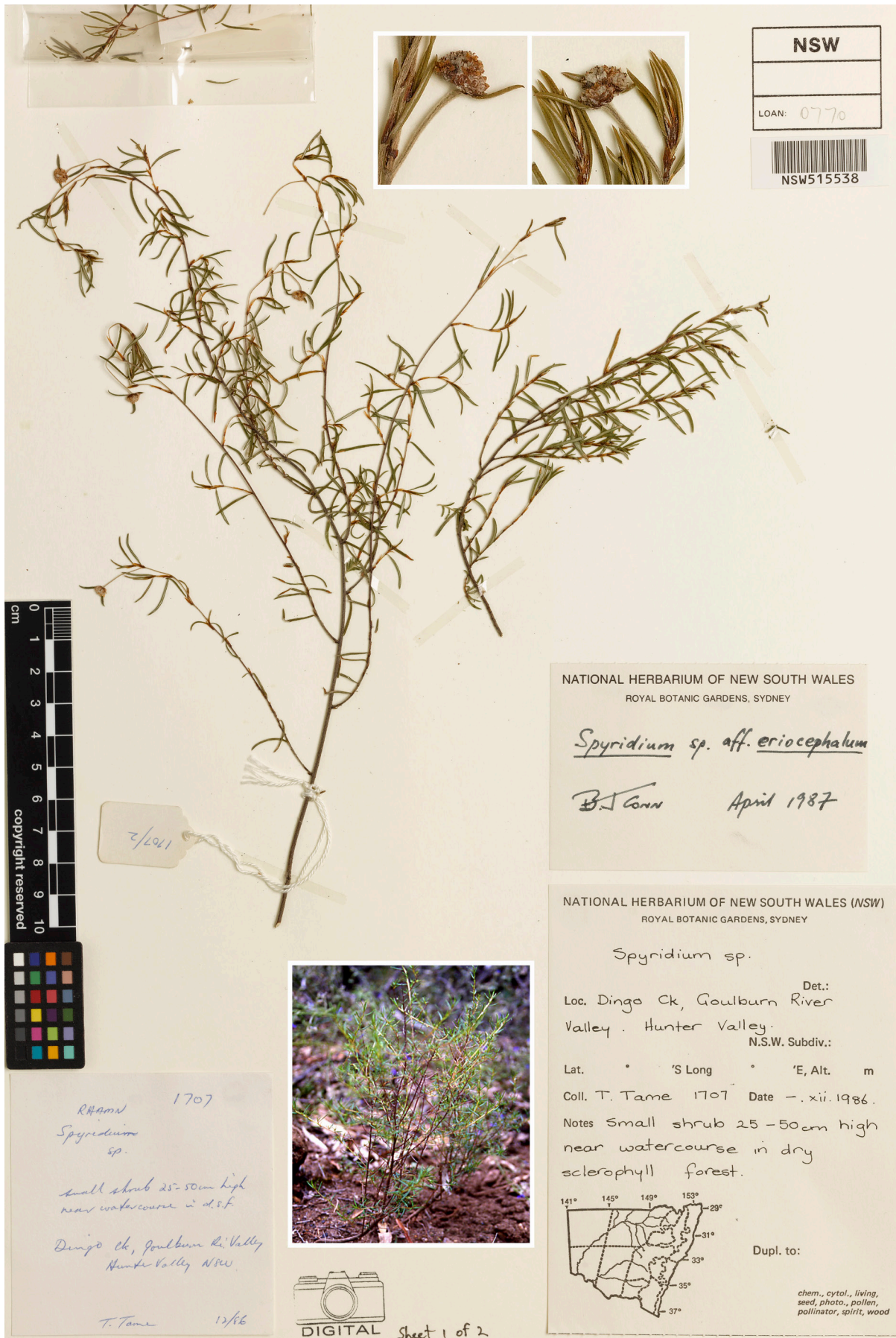
of Merriwa, 19 July 2001, *T. Peake HT1885* (NSW); Near Wollar, S of Merriwa, 15 Sep. 2003, *T. Peake HT1924* (NSW); S of Wollar-Muswellbrook rd, 17 July 2003, *H. Washington s.n.* (NSW).

#### **5. *Spyridium* sp. Dingo Creek (*T. Tame 1011*) Kellermann**

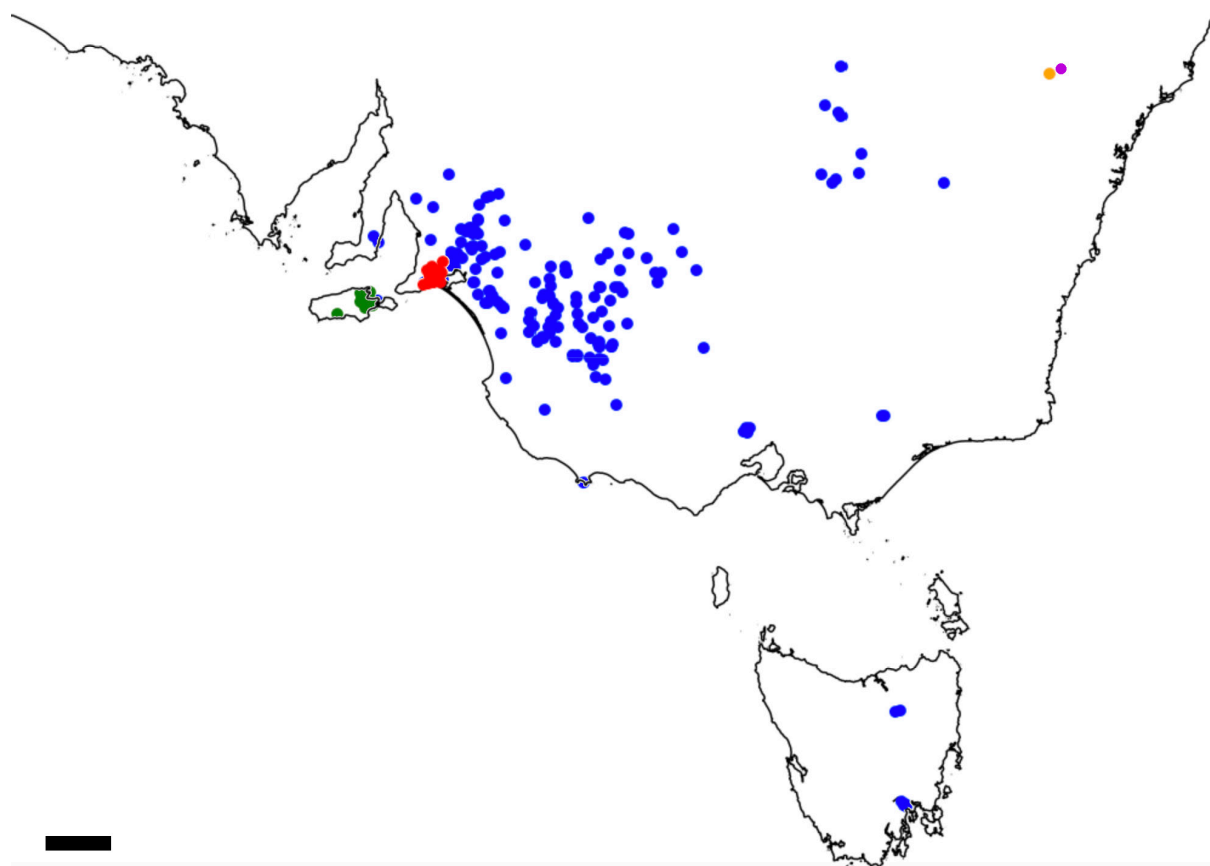
*Shrubs* to 0.5 m high; young stems pubescent with medium dense appressed white long simple hairs over sparse smaller stellate hairs. *Leaves* alternate: *stipules* narrowly triangular to linear filiform, 2.5–4.6 mm long, almost entirely fused, reddish-brown, glabrous; *petiole* 0.7–1 mm long, glabrous; *lamina* linear to very narrowly elliptic, 10–15 (–20) mm long, 0.6–1 mm wide, base narrowly cuneate to cuneate, margins strongly recurved to revolute, acute to acuminate, upper surface glabrous to very shortly hispid, lower surface mainly obscured by margins, with dense white stellate hairs, midrib also with long appressed white simple hairs. *Densely felty floral leaves* absent, inflorescence subtending leaves similar to vegetative leaves. *Inflorescence* a dense axillary or terminal head of up to 15 cymosely arranged  $\pm$  sessile flowers, 4–6 mm diam.; *inflorescence axis* 10–18 mm long, with appressed long white simple hairs; *bracts* ovate, c. 2.2 mm long, mostly glabrous, simple hairs along middle, margins ciliate. *Flowers* white. *Hypanthium tube* c. 1.1 mm long, c. 0.6 mm diam., with sparse white simple hairs, base with similar hairs or almost glabrous. *Sepals* c. 0.6 mm long, with an indumentum of medium dense white simple over sparse stellate hairs. *Petals* 0.4–0.5 mm long, cucullate, distinctly clawed; limb:claw ratio c. 4:1. *Stamens* subequal to the petals, c. 0.4 mm long; *anthers* c. 0.15 mm long. *Disc* smooth, glabrous, forming an undulating ring at the summit of the hypanthium tube. *Ovary* inferior, carpels 3, summit with dense erect stellate and simple hairs; *style* c. 0.9 mm long, entire, slightly 3-lobed at apex. *Fruits* obovoid to ellipsoid, 1.5–1.9 mm long, 1.25–1.5 mm wide, containing 3 white papery fruitlets of which often only 2 develop fully, torus in upper third, fruit wall mainly glabrous with a few simple hairs, dark brown to black; *seeds* flattened ovoid to ellipsoid, 1.1–1.6 mm long, 0.8–1.2 mm wide, fawn to light brown with some dark mottles, base dark brown. **Fig. 6.**

**Notes.** This entity is given a phrase name here, as it is based only on three specimens, collected in the 1980s from Dingo Creek in the Goulburn River valley, between Widden and Baerami (Fig. 7). The precise location is not known and a recent search (Dec. 2021) of part of this creek system failed to locate the population. Apart from a fire encroaching on the western side of the creek in 2006, the area has not been burnt for many years, i.e. it is possible the taxon now remains only in the seed bank. Further searches post-fire are recommended.

Flowering and fruiting characters are based on measurements of only one flower (*T. Tame 1381*) and two fruits (*T. Tame 1011*).



**Fig. 6.** *Spyridium* sp. Dingo Creek (T. Tame 1011). Herbarium specimen (T. Tame 1707), showing the very lax branches with long narrow leaves. Top insets: close-up of two flower-heads (T. Tame 1011). Bottom inset: photo from collecting locality by the collector of the specimen (T.M. Tame; courtesy Royal Botanic Gardens and Domain Trust, Sydney).



**Fig. 7.** Distribution map of taxa in the *Spyridium eriocephalum* complex, created from specimens examined: *S. eriocephalum* (blue), *S. glabrisepalum* (green), *S. latifolium* (red), *S. undulifolium* (orange) and *Spyridium* sp. Dingo Creek (purple). Scale bar = 100 km.

**Habitat.** All three specimens were presumably collected at the same locality but in different years, “[N]ear watercourse in dry sclerophyll forest” (*T. Tame 1707*) in “[S]andy alluvial soil” (*T. Tame 1011*). On the third specimen the collecting locality is described as: “Shrubland on creek bank. In damp, well drained, semi-shaded site on creek bank. Loose sandy soil.” (*T. Tame 1381*). Recent observations along the creek found the vegetation to comprise an overstorey of *Eucalyptus punctata*, *Acacia linearifolia* and *Eucalyptus crebra*, with a dense understorey of *Bursaria spinosa*, *Cassinia quinquefaria*, *Acacia caesiella*, *Isopogon dawsonii*, *Leptospermum* spp., *Notelaea microcarpa*, *Cyphanthera albicans* and *Spyridium buxifolium*.

**Phenology.** Flowering between Aug. and Dec.; the single fruiting specimen was collected in Nov.

**Affinities.** *Spyridium* sp. Dingo Creek might be a form of *S. undulifolium*, which occurs c. 50 km to the west, but it can be distinguished from that species by its longer and narrower leaves, and much smaller flower-heads with a longer inflorescence axis. There are also marked habitat differences between these two locations: *Spyridium* sp. Dingo Creek occurring in alluvium along a creekline, while *S. undulifolium* occurs on an exposed hill with skeletal shale soils. However, close proximity to a stream in a moist habitat may produce plants of a different habit, compared to typical *S. undulifolium*, but this requires further investigation. The phrase

name taxon might also be a form of the widespread and more variable *S. eriocephalum*, from which it differs in the thinner leaves, lax habit and dense simple hairs on young branches, but the closest known populations of *S. eriocephalum* are 350–400 km away.

In the molecular analysis of Clowes *et al.* (2022), only *S. undulifolium* was included, not *Spyridium* sp. Dingo Creek. It is therefore necessary to re-locate the population of this entity and include it in future research on the *S. eriocephalum* complex to identify its most appropriate taxonomic position.

#### **Specimens examined**

NEW SOUTH WALES. Dingo Creek, Goulburn R. Valley, Hunter Valley, 1 Aug. 1984, *T. Tame 1011* (NSW); 10 Nov. 1985, *T. Tame 1381* (AD, NSW); 1 Dec. 1986, *T. Tame 1707* (NSW).

#### **Acknowledgments**

Mark Wapstra (Hobart) provided images of *Spyridium eriocephalum* from East Risdon S.R., Dan Duval (South Australian Seed Conservation Centre, Botanic Gardens of South Australia) supplied photos of *S. glabrisepalum*, and Kerry Gibbons (NSW) the photo of *Spyridium* sp. Dingo Creek. David Mabberley (Oxford) gave advice on the collections of Robert Brown and Ferdinand

Bauer, Kat Ticli (AD) is thanked for scoring the vegetative characters of the species and for taking images of herbarium specimens. We appreciate comments on the manuscript by Mark Wapstra and an anonymous referee. The project “A new phylogeny of the Australian Rhamnaceae, revision of *Cryptandra* and *Spyridium*, and completion of the *Flora of Australia* treatment of the family” is supported through funding from the Australian Government’s Australian Biological Resources Study (ABRS) National Taxonomy Research Grant Programme. Catherine Clowes was supported by a Holsworth Wildlife Research Endowment (The Ecological Society of Australia), and the Hansjörg Eichler Scientific Research Fund (Australasian Systematic Botany Society).

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