CONTRIBUTIONS TO A CATALOGUE OF ALIEN PLANTS IN TASMANIA IV

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(with three text-figures and four plates)

Baker, M. L. 2016(15:xii): Contributions to a catalogue of alien plants in Tasmania IV. Papers and Proceedings of the Royal Society of Tasmania 150(2): 19–26. https://doi.org/10.26749/rstpp.150.2.19 ISSN 0080-4703. Tasmanian Herbarium, Tasmanian Museum and Art Gallery, PO Box 5058, UTAS LPO, Sandy Bay, Tasmania 7005, Australia. Email: Matthew.Baker@tmag.tas.gov.au

The status of four alien plant taxa in Tasmania is discussed. *Mirabilis jalapa* L., *Phytolacca octandra* L., *Coleonema pulchellum* I.Williams and *Gomphocarpus fruticosus* (L.) W.T.Aiton are ornamentals that are now recognised as naturalised in Tasmania. A description for each taxon is provided and distribution and habitat details are discussed. The status of two species that are recorded as naturalised in Tasmania but are not represented in the Tasmanian Herbarium collection was also investigated. *Veronica peregrina* L. is known from two collections from Tasmania whilst the name *Silene longicaulis* Pourr. ex. Lag. was found to be misapplied to Tasmanian specimens of *Silene colorata* Poir. **Key Words: naturalised, exotic, weeds, introduced, flora,** *Mirabilis, Phytolacca, Coleonema, Gomphocarpus, Veronica, Silene.*

INTRODUCTION

Management of Tasmania's alien flora requires an accurate and up-to-date account of the taxa present. This paper is the fourth of a series (Baker 2005, 2007, 2011) which aims to ensure that taxa that become naturalised in Tasmania are formally recorded; that taxa that are present in Tasmania, but have not become fully naturalised ("sparingly naturalised" in the sense of Buchanan (2005) and Baker (2005)) are likewise recorded; that new incursions of alien taxa are recorded; and to maintain up-to-date names for taxa that have been affected by nomenclatural change. In this paper, four species that were introduced as garden ornamentals (Mirabilis jalapa L., Phytolacca octandra L., Coleonema pulchellum I.Williams and Gomphocarpus fruticosus (L.) W.T.Aiton) are treated, giving diagnostic descriptions and notes on their distribution. The status of two ruderal herbs that are recorded as naturalised in Tasmania but are not represented in the Tasmanian Herbarium collection (Veronica peregrina L. and Silene longicaulis Pourr. ex. Lag.) was also investigated. It is hoped that this information will increase general knowledge of distribution of naturalised alien taxa in Tasmania and raise community awareness of plants that have the potential to become naturalised.

Reports of new incursions, naturalised and sparingly naturalised species are welcomed by the author. Specimens and relevant collection information can be forwarded to the Tasmanian Herbarium.

MATERIALS AND METHODS

Primary sources used for this study are specimens held in the Tasmanian Herbarium (HO). Herbarium abbreviations follow Holmgren *et al.* (1990). Identifications by the author and others were checked against literature and, where available, reliably identified voucher specimens.

Voucher specimens for all species treated have been lodged in the Tasmanian Herbarium. The naturalised status of treated species is based upon field observations made by the author and others and, when available, from notes accompanying specimens.

The placement of genera in families follows the *Flora* of *Tasmania Online* (Duretto 2009).

Citations of synonyms are limited to names used in Tasmanian literature. Tasmanian distributions follow regions proposed by the Interim Biogeographic Regionalisation for Australia (IBRA). Geographical origins of plants treated have been determined from various published sources. Definitions of "alien" and "naturalised" and "sparingly naturalised" are in accordance with Baker (2005).

The naturalised species treated in this paper were chosen because they have not been discussed in Tasmanian botanical literature. They are species that have been recently collected and observed in naturalised populations by the author.

NATURALISED TAXA IN TASMANIA

1. *Mirabilis jalapa* L., *Sp. Pl. 1*: 177 (1753) var. *jalapa* (Nyctaginaceae)

Common name: Four O'clock Plant, Marvel-of-Peru

Illustrations: Richardson *et al.* (2006: 317); Richardson *et al.* (2011: 384); Jacobs & Harden (1990: 187); Jessop (1986a: fig. 104c); Phillips & Rix (2002: 82); Spencer (1997: 184); (pl. 1).

Description: Erect, bushy perennial herbs with thick tuberous rootstocks. Plants to 1.5 m tall; nodes swollen. Leaves opposite; petiole to 25 mm long; lamina ovate to broad-lanceolate, up to 120 mm long, 20–50 mm wide; base cuneate to obtuse; margin minutely undulate with sparse multicellular hairs; apex acute. Inflorescences compact, axillary and terminal cymes. Bracts five, connate, calyx-like. Perianth 5-lobed, 2–3 cm long, white, yellow or magenta or a variegated mixture of these colours; stamens 5–6. Fruit a subglobose achene, with base prominently constricted, *c*. 7 mm long, 5 mm diam., dark brown to black, smooth or faintly rugose, glabrous.

A comprehensive description can be found in Le Duc (1995).

Mirabilis jalapa flowers mainly from January to May and fruits from April to July. The species can be recognised by its funnel-shaped, brightly and usually multi-coloured flowers that open in the afternoon.

Discussion: Mirabilis L. is a genus of about 60 species that are native to North and South America with one



PLATE 1 — Mirabilis jalapa: (A) flowering branch; (B) developing flowers; (C) dissected flower; (D) ripe seed.

species in the Himalayas (Le Duc 1995). Several species are cultivated throughout the world, especially in frost-free regions, the most commonly cultivated species being *M. jalapa*.

Mirabilis jalapa is thought to be native to Mexico where it has had a long history of cultivation for its medicinal properties and showy flowers (Le Duc 1995). It is widely cultivated and naturalised throughout the world, especially in tropical and subtropical areas (Le Duc 1995). In Australia, it is naturalised in Western Australia, South Australia, Queensland, New South Wales and Tasmania. It is considered to be sparingly naturalised in Victoria where it is known only from two locations. In Tasmania, it has been recorded in naturalised populations at waste disposal sites near Scottsdale and St Helens. It has also been recorded as persisting in a long abandoned garden on Deal Island (fig. 1). The earliest Tasmanian collection, made in 1961, states that it was collected from the "North West" but no further information regarding its status is noted. It is cultivated in gardens throughout Tasmania. *First record*: 1961, J. Somerville.

Specimens examined: TASMANIA: Flinders (FLI): Garden Cove, Deal Island, 1 May 2010, P.A. Tyson 988 (HO); Stieglitz Tip (disused), St Helens, 13 Feb. 2009, M.L.Baker 1980, 1981 & G.S. Stewart (HO); Tasmanian Northern Slopes (TNS): North West, 1961, J.Somerville s.n. (HO); Ben Lomond (BEL): Scottsdale tip off Bridport Road, 200 m N of Jetsons Road junction, 11 Jan. 2005, M.L.Baker 1403 & A.M.Gray (HO).

2. *Phytolacca octandra* **L.**, *Sp. Pl.*, ed 2: 631 (1762). (Phytolaccaceae)

Common name: Inkweed, Red Ink Plant, Dyeberry, Poke Weed

Illustrations: Richardson *et al.* (2006: 334); Richardson *et al.* (2011: 410); Jessop (1986b: fig. 100); Harden (1990: 176); Walsh (1996: fig. 21a-c); Hewson (1984: fig. 1a); (pl. 2).



PLATE 2 — *Phytolacca octandra*: (A) flowering and fruiting branch; (B) maturing raceme with ripe and developing fruit; (C) individual flower; (D) developing fruit; (E) ripe fruit; (F) calyx after fruit has dehisced; (G) seed.

Description: Shrub-like perennial herb to 2 m tall. Stems glabrous, woody at base, more or less succulent above, green to reddish. Leaves alternate, elliptic to lanceolate, 40-120(-250) mm long, 10-40(-130) mm wide; petiole almost sessile to 25(-50) mm long; adaxial surface glabrous, glossy, green; abaxial surface less glossy; base attenuate; margin slightly recurved, minutely and irregularly undulate; apex acute. Inflorescence a many-flowered, leaf-opposed raceme up to 16 cm long. Flowers on pedicels up to 2 mm long, subtended by a single lanceolate bract and a pair of smaller bracteoles. Perianth in one whorl of 5 petaloid tepals; tepals ovate, c. 3 mm long, white, green or reddish-purple; stamens usually 8. Fruit a berry, depressed-globular, 5-10 mm diam., with up to eight single-seeded lobes, green at first, ripening to purplish-black. Seed lenticular, c. 3 mm diam, shiny, black.

A comprehensive description can be found in Nowicke (1968).

Phytolacca octandra flowers and fruits throughout the year. Leaves of up to 25 cm long and 13 cm wide have been reported in Australian literature (Walsh 1996). Leaves c. 20 cm long have been observed on shaded plants at King Island whilst those of plants in non-shady habitats are much reduced in size (M. Wapstra pers. comm). *Phytolacca octandra* can be readily distinguished from other Tasmanian plants by the presence of purplish-black berries in spike-like infructescences.

Discussion: Phytolacca L. is a genus of about 20–25 species (Nowicke 1968, Mabberley 2008). It is cosmopolitan in its distribution although it is mostly associated with the warmer regions of the Americas (Nowicke 1968, Hewson 1984). The genus is naturalised in Australia and is represented by four species (*P. americana* L., *P. dioica* L., *P. octandra* L. and *P. rivinoides* Kunth & C.D.Bouche). In Tasmania, only *P. octandra* is naturalised.

Phytolacca octandra is a more or less cosmopolitan species (Nowicke 1968). Introduced to Australia as a



FIG. 1 — Geographical distribution of *Mirabilis jalapa* (green) and *Phytolacca octandra* (red) as known from herbarium specimens.

garden plant, it is now naturalised in Western Australia, South Australia, Queensland, New South Wales, Norfolk Island, Australian Capital Territory, Victoria and Tasmania (CHAH–APC 2016, The Government of South Australia 2016) and is widespread in coastal and inland regions. In South Australia, it is known from only two specimens (CHAH–AVH 2016). In Tasmania, it is naturalised only on King Island (fig. 1) where it was known in the 1980s from a single plant. It has increased its range and is now a common component of about 1.5 km of roadside verge, growing along both sides of the road and in adjacent paddocks. It has also formed dense thickets within nearby *Melaleuca ericifolia* Sm.-*Acacia melanoxylon* R.Br. swamp. The naturalised population is thought to have spread from cultivated plants.

First record: 2009, M. Wapstra.

Specimens examined: TASMANIA: King (KIN): Fraser River, King Island, 25 Mar. 2009, M. Wapstra 697, R.B.Schahinger & M.Larcombe (HO); Fraser River area, King Island, 25 Mar. 2009, M. Wapstra 698, M. Larcombe & R.B.Schahinger (HO); Fraser Road, McSweyn block. King Island, 5 Apr. 2009, M. Batey, 7 (HO). WESTERN AUSTRALIA: 3 km SW of Albany Highway on Mt Barker Hill Road, 3 km SW of Mt Barker, 1 May 1996, B.J.Lepschi 2572 & T.R.Lally (HO). NEW SOUTH WALES: Lake Bathurst, W shore. Abandoned boating shed, 2.5 km NE of Tarago, 28 Dec. 1992, B.J.Lepschi 911 (HO). QUEENSLAND: Statue Bay, Yeppoon, 30 May 1985, A.M.Buchanan 6856 (HO). VICTORIA: The You Yangs, N end of range, 23 May 1988, A.M. Buchanan 11017 (HO). NEW ZEALAND: Warawara Forest; 1km NE of Mitimiti on banks of Taikarawa Stream, 26 Apr. 1990, J.M.Fox 55 & P.J.Brownsey (HO).



FIG. 2 — Geographical distribution of *Coleonema pulchellum* as known from herbarium specimens.

3. *Coleonema pulchellum* I.Williams, *J. S. African Bot.* 47(1): 89 (1981). (Rutaceae)

Common name: Diosma

Illustrations: Richardson *et al.* (2006: 371); Richardson *et al.* (2011: 470); Spencer (2002: 15); (pl. 3).

Description: Rounded shrub to 1(-2) m tall. Stems finely pubescent, becoming glabrous with age. Leaves aromatic, alternate, linear-lanceolate, up to 10 mm long, up to 1 mm wide; petiole up to 1 mm long; adaxial surface ± flat, without glands; abaxial surface convex, with two rows of sunken glands; margin with a single row of antrorse hairs; apex drawn out to a very fine point. Inflorescence of solitary flowers in axils towards the ends of branches. Flowers 5-merous, subtended by a pair of leaf-like bracts and several smaller bracteoles. Sepals c. 2.5 mm long, c. 1.5 mm wide, with translucent and ciliate margins. Petals up to 5.5 mm long, pink at first, fading to almost white, narrowing at about the midpoint to a distinct claw; claw c. 2.5 mm long, ± erect; limb c. 3 mm long, obovate to broad-orbicular, spreading at c. 90° to the claw. Stamens about as long as claw. Staminodes joined to the petal claws for most of their length. Ovary 5-carpellate, within a cup-like disc. Fruit dehiscent, with horned mericarps, up to 5 mm long. Seed c. 3 mm long.

A comprehensive description can be found in Williams (1981).

Coleonema pulchellum flowers and fruits mainly from winter through to spring. The species can be readily distinguished from other Tasmanian plants by having aromatic leaves with two rows of glands on the abaxial surface. Shrubs reaching heights of two metres are found in the species' native range. However, in Tasmania, plants are usually less than 1 m tall.



PLATE 3 — *Coleonema pulchellum*: (A) flowering branch; (B) individual flower; (C) developing fruit; (D) mature fruit.

Discussion: Coleonema Bartl. & H.L.Wendl. is a genus of eight species (Williams 1981) native to South Africa (Kubitzki et al. 2011). The genus is naturalised in Australia and is represented by two species that were introduced as garden plants: C. album (Thunb.) Bartl. & H.L.Wendl. (naturalised in Western Australia) and C. pulchellum L. However, Wilson (2013) states that the name C. album (Thunb.) Bartl. & H.L.Wendl. has been misapplied by various authors (e.g., Marchant et al. 1987; Paczkowska & Chapman 2000; Wheeler et al. 2002) to Western Australian material of C. pulchellum. This Western Australian material was not examined in this study. In Tasmania, only C. pulchellum is naturalised.

Coleonema pulchellum is native to coastal areas of South Africa (Williams 1981). In Australia, it is naturalised in Victoria and Tasmania. In Tasmania, it is known from several sites where it has most likely spread from cultivated plants (fig. 2). A population in excess of 50 plants was recorded along the roadside at South Arm. Numerous seedlings were also recorded growing near a mature cultivated specimen in a garden bed at Strahan and a single mature plant was recorded growing amongst native vegetation at the Trevallyn Nature Recreation Reserve. It is a very commonly cultivated plant in Tasmania and naturalised plants are expected to be more common than reported here. The name C. pulchrum (a shrub with longer leaves and larger flowers), has been widely misapplied to C. *pulchellum*, especially in the horticultural trade (Williams 1981, Spencer 2002).



PLATE 4 — *Gomphocarpus fruticosus*: (A) flowering and fruiting branch with a dissected fruit; (B) apical view of flower; (C) dissected flower; (D) calyx.

First record: 2000, R. Glazik.

Specimens examined: TASMANIA: Tasmanian SE (TSE): Nelson Road, Hobart, 9 Feb. 1985, A.M.Buchanan 5593 (cultivated) (HO); South Arm, 30 Sep. 2000, R. Glazik s.n. (HO). Tasmanian West (TWE): Strahan, 21 Nov. 2005, M.Baker 1675 & A.M.Gray (HO). Tasmanian Northern Midlands (TNM): Trevallyn Nature Recreation Area, 20 Sep. 2011, R.Skabo s.n. (HO).

4. *Gomphocarpus fruticosus* (L.) W.T.Aiton, *Hortus Kew.* (W.T.Aiton), ed. 2. 2: 80 (1811). subsp. *fruticosus* (Apocynaceae, Asclepiadaceae)

Synonym: Asclepias fruticosa L., Sp. Pl. 1: 216 (1753).

Common name: Swan Plant, Narrow-leaf Cotton-bush *Illustrations*: Richardson *et al.* (2006: 109); Richardson *et al.* (2011: 133); Harden & Williams (1992: 527); Jeanes (1999: fig. 64c); Parsons and Cuthbertson (2001: 180–181); (pl. 4).

Description: Erect shrubs to 1.5 m tall. Stems finely pubescent with appressed hairs. Leaves opposite to sub-

opposite, narrowly lanceolate, 25-115 mm long, 3-12 mm wide; petiole up to 5 mm long; adaxial surface glossy, green, covered with sparsely scattered hairs; abaxial surface glabrous except for the midrib, less glossy than the adaxial surface; base cuneate; margin slightly revolute; apex acute. Inflorescences extra-axillary umbels with up to eight flowers on a peduncle up to 26 mm long. Flowers on erect pedicels up to 20 mm long, (up to 25 mm long, strongly deflexed and stouter when in fruit). Sepals five, up to 5 mm long, narrow-lanceolate to triangular, appressed hairy. Corolla lobes up to 7 mm long, united at the base, white, deflexed to spreading. Corona lobes five, attached to a staminal column. Stamens five, each with a pair of pollinia. Fruit an inflated follicle, usually one or two per inflorescence by abortion, glabrescent, covered in numerous filiform protuberances, globose, green at first, ripening to a straw colour, up to 30 mm wide and 55 mm long; apex attenuate. Seed c. 50 per fruit, ovoid to pyriform, concavo-convex, 4-5 mm long, 2-2.5 mm wide, rugose, brown, with a conspicuous tuft of white silky hairs.

A comprehensive description can be found in Goyder and Nicholas (2001).

Gomphocarpus fruticosus flowers from February–March and fruits from February–June. The species can be readily distinguished from other Tasmanian plants by the large inflated fruits that are covered in soft filiform protuberances.

Discussion: Gomphocarpus R.Br. is a genus of 20 species of mostly shrubby perennial herbs native to Africa and eastwards to the Arabian Peninsula, the Sinai Peninsula, Israel and Jordan (Goyder & Nicholas 2001). The genus is naturalised in Australia and is represented by three species (G. cancellatus (Burm.f.) Bruyns (South Australia and Victoria), G. fruticosus (all states except Northern Territory) and G. physocarpus E.Mey. (Western Australia, South Australia, Queensland, New South Wales and Lord Howe Island)). Hybrid swarms between G. fruticosus and G. physocarpus have been recorded in Australia (Forster 1996).

Gomphocarpus fruticosus consists of five subspecies that are native throughout southern and eastern Africa and the southern parts of the Arabian Peninsula (Saudi Arabia, Yemen and Oman) (Goyder & Nicholas 2001). It is the type subspecies (native to southern Africa as far north as southwest Angola, Botswana, Zambia and Mozambique) that is naturalised in Australia (Goyder & Nicholas 2001). In its native range, it is associated with dry sandy soils in open or disturbed places and on river banks (Goyder & Nicholas 2001). It is cultivated and widely naturalised elsewhere in warm temperate or dry subtropical areas of the world (Goyder & Nicholas 2001). The species was recorded as an alien species in Australia from as early as 1802 (for a brief account of its history in Australia see Parsons & Cuthbertson, 2001) and is now naturalised in all states and territories except for the Northern Territory (CHAH-APC 2016). In Victoria, it has been recorded as an occasional weed of disturbed sites such as roadsides, pastures and waterways (Jeanes 1999). In New South Wales, it is widespread in waste places, pastures and river banks (Harden & Williams 1992). In Tasmania, it has been recorded as a weed of roadsides, rough pastures, unkempt gardens and tip sites (fig. 3).

First record: 1928, R.M. Lester-Garland. (Photograph – Possibly cultivated)

Specimens examined: TASMANIA: East Coast region (TSE): Duke Street, Sandy Bay. Hobart, 10 May 1984,



FIG. 3 — Geographical distribution of *Gomphocarpus fruticosus* as known from herbarium specimens.

E.Edmonds s.n. (cultivated) (HO); Hobart, Mar. 1928, R.M.Lester-Garland s.n. (?Cultivated) (HO); Bellerive, grounds outside of Bellerive Cricket Oval, 5 Apr. 2007, M.L.Baker 1792 & A.Crane (cultivated)(HO); Seven Mile Beach Protected Area, 19 Feb. 2009, A.Jackson s.n. (HO); Darlington, Maria Island, 7 Mar. 2011, M.L. Baker 2399 (HO). Flinders region (FLI): Prime Seal Island, 2002, S. Harris s.n. (HO); Summerset property, Memana, Flinders Island, 1 Feb. 1993, R.P.Minchin s.n. (HO); West End Road, 6 Jun. 2000, A.M. Buchanan 15767 (HO); West End Road, Tanners Bay, Flinders Island, 3 Feb. 2012, K. Hopkins s.n. (HO); Cape Barren Island, Barretts Hardluck Track, 15 Sep. 2012, P.A. Tyson 1072 & B. Tyson (HO); Stieglitz Tip (disused), St Helens, 13 Feb. 2009, M.L.Baker 1986 & G.S.Stewart (HO). NEW SOUTH WALES: c. 30 km S of Singleton on Wollombi Road, 8 Nov. 1972, E.N.S. Jackson 2292 (HO).

TAXA NOT CONSIDERED NATURALISED IN TASMANIA

5. *Veronica peregrina* L., *Sp. Pl.* 1: 14 (1753) (Scrophulariaceae)

Common name: Wandering Speedwell

Illustrations: Richardson et al. (2011: 421); Briggs & Barker (1999: fig. 99h).

Discussion: This species is known in Tasmania from only two specimens (one attributed to F. Mueller (undated) and the other to C. Stuart in 1849), held at the National Herbarium of Victoria (MEL). The species is mentioned in Rodway's 1903 *Flora of Tasmania* as being "introduced from Europe". It is treated in *The Students Flora of Tasmania* (Curtis 1967) with the note that it is "Introduced. Occasional in cultivated ground". Consequently it has been included as a sparingly naturalised species in the Tasmanian Vascular Plant Census (see de Salas & Baker 2015 and previous editions). Examination of the specimens revealed that they look identical in form and state of maturity and are therefore likely to be duplicates. In addition, it is known that Mueller and Stuart corresponded and that Stuart sent plant specimens that he collected in Tasmania to Mueller in South Australia (Home et al. 1998). Examination of all herbaceous Veronica specimens in the Tasmanian Herbarium collection revealed no specimens of V. peregrina misidentified amongst the other species. From this and the lack of notes accompanying the specimens, it is difficult to determine the status of this species in Tasmania. Having not been collected in the state for over 165 years strongly suggest that it is no longer present.

Veronica peregrina is a perennial herb, native to North and South America. It is widely naturalised throughout the world where it favours moist habitats including wastelands, pastures, river flats and creek margins. There are two subspecies: the glandular hairy taxon is *V. peregrina* subsp. *xalapensis* (Kunth) Pennell, whereas the glabrous taxon (illustrated in Richardson *et al.* (2011)) is the type subspecies. It is the hairy subspecies that is present as a naturalised plant in Australia where it is widespread in South Australia, Australian Capital Territory, New South Wales and Victoria. In Australia, it grows in similar habitats to where it is native, favouring moist and seasonally inundated environments in inland areas.

Specimens examined: **TASMANIA**: V.D.L. [Van Diemensland], *F.Mueller s.n.* (MEL2256541). *Tasmanian Northern Midlands (TNM)*: Woodhall. South Esk Riv[er]. Van Diemensland, Feb. 1849, *C.Stuart 459* (MEL).

6. *Silene colorata* Poir., *Voy. Barbarie* ii: 163 (1789). (Caryophyllaceae)

Synonym: Silene longicaulis auct. non Pourr. ex. Lag. sensu de Salas & Baker, *Tasmanian Vascular Plant Census* (2015). *Common name*: Mediterranean Catchfly

Illustrations: Talavera (1990: Lám. 89a-g); Adams (1996: Fig. 51f)

Discussion: The inclusion of Silene longicaulis in the Tasmanian Vascular Plant Census (de Salas & Baker 2015) was based on a single specimen of S. colorata held at the National Herbarium of New South Wales (NSW). The specimen was recently discovered to have been misidentified as S. longicaulis after it was compared to other collections of Silene held at the Tasmanian Herbarium. This species is known in Tasmania from only two specimens (one attributed to F.A. Rodway and the other to L. Rodway) both collected from South Arm in the South East region. Examination of all Silene specimens in the Tasmanian Herbarium collection revealed no further specimens of S. colorata. From this and the lack of notes accompanying the specimens, it is difficult to determine the status of this species in Tasmania. However, having not been collected or recorded in the state for over 110 years strongly suggests that the species is no longer present.

Distribution and habitat: Silene colorata is an annual herb native to the Mediterranean region. In Australia, it has been recorded only in Tasmania.

Specimens examined: TASMANIA: Tasmanian South East (TSE): South Arm, 12 Feb. 1899, F.A.Rodway 658 (NSW); South Arm, Dec. 1905, L.Rodway 65A (HO).

ACKNOWLEDGEMENTS

I would like to thank Gintaras Kantvilas for his significant support in the development of this manuscript. Thanks must also go to Maria MacDermott and Miguel de Salas for their assistance in the preparation of the plates. John Hosking is thanked for his helpful comments in his capacity as a reviewer. The directors of the National Herbarium of Victoria and the National Herbarium of New South Wales are thanked for the loan of *Veronica* and *Silene* specimens that were studied during this project. Margaret Batey is thanked for supplying me with excellent fresh material of *Phytolacca octandra*.

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(Accepted 4 October 2016)