CONTRIBUTIONS TO A CATALOGUE OF ALIEN PLANTS IN TASMANIA I

by Matthew L. Baker

(with seven plates and 11 text-figures)

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The status of 11 alien plant taxa recorded in Tasmania is discussed. *Hypericum humifusum* L. and *Solanum americanum* Mill. have been recorded only once and further evidence is required to determine their status in Tasmania. *Setaria pumila* (Poir.) Roem. & Schult. subsp. *pumila* is a recent incursion of an Australian mainland weed that has been recorded once in Tasmania and has since been eradicated from the recorded site. A treatment of naturalised *Cotoneaster* Medik. in Tasmania is included. *Genista linifolia* L. and *Kunzea ericoides* (A.Rich.) Joy Thomps. are ornamental taxa that are naturalised in Tasmania. Tasmanian specimens of *Plantago coronopus* L. are treated at subspecific rank: *P. coronopus* subsp. *coronopus* and *P. coronopus* subsp. *commutata* (Guss.) Pilg. A diagnostic description for each taxon is provided and distribution and habitat details are discussed. Keys to the Tasmanian species of *Cotoneaster*, *Genista* L., *Kunzea* Rchb. and *Setaria* P. Beauv., and to the subsp. of *Plantago coronopus* are included.

Key Words: naturalised, incursions, exotic, weeds, introduced, flora.

INTRODUCTION

Alien species comprise a considerable proportion of Tasmania's plant biodiversity. The most recent catalogue of Tasmanian vascular plants (Buchanan 2004) lists 774 plant taxa at specific and subspecific rank as being naturalised or 'sparingly naturalised'. This equates to nearly 30% of the total vascular plant flora of Tasmania.

Much of the literature pertaining to naturalised plant incursions in Tasmania has been summarised by Rozefelds *et al.* (1999) and Rozefelds & McKenzie (1999). Although outdated, particularly with respect to the alien flora, *The Student's Flora of Tasmania* (Curtis 1963, 1967; Curtis & Morris 1975, 1994) remains the most comprehensive account of the naturalised plants in Tasmania. Several handbooks that deal specifically with weeds that occur in Tasmania have also been produced (e.g., Hyde-Wyatt & Morris 1975, 1980). Tasmanian distributions for certain alien species are also cited in broader focus volumes dealing with Australia as a whole (e.g., Auld & Medd 1987, Lazarides *et al.* 1997, Parsons & Cuthbertson 2001), in various state floras (Harden 1992, 1993, 2000, 2002; Walsh & Entwisle 1994,1996,1999) and in the *Flora of Australia* series.

The number of naturalised plants in Tasmania has been increasing rapidly since the earliest days of settlement. The earliest catalogues of plant naturalisations in Tasmania were made by Spicer (1878a, 1878b). Rozefelds & McKenzie's (1999) appraisal of Spicer's publications indicates that by the 1870s, 104 alien plants had become naturalised in Tasmania. A review of more recent statistics of alien invasions in Tasmania was compiled by Rozefelds *et al.* (1999). This research showed that between 1971 and 1995, 159 plant taxa had been recorded as naturalised, bringing the total number to over 740 naturalised taxa. In the period between Rozefelds *et al.* (1999) and the latest edition of the Tasmanian vascular plant census (Buchanan 2004), an additional 34 alien plant taxa are recorded. Thus the number of naturalised plants in Tasmania is clearly not stable and is generally increasing at a steady rate.

Changes to the number of alien plants listed as naturalised or 'sparingly naturalised' in Tasmania occur by numerous methods. There are incursions of new alien species, new records as the identity of plants that may have been in Tasmania for some time is recognised, and new names as advances in taxonomic work occur. There are even examples of alien plants that are believed to have been eradicated from the state or that may have become locally extinct.

Management of Tasmania's alien flora requires an accurate and up-to-date account of taxa present. It is envisaged that this paper will be the first part of a series aiming to ensure that taxa which become naturalised in Tasmania are formally recorded; that taxa that are present in Tasmania, but have not become fully naturalised, 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, 11 taxa are treated, giving diagnostic descriptions and notes on distribution. 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.

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 with 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.

Citations of synonyms are limited to names used in Tasmanian literature. Tasmanian distributions follow floristic regions proposed by Orchard (1988). Geographical origins of plants treated have been determined from various published sources.

DEFINITIONS

The status of a species, that is, whether it is naturalised or not, may be subjective and not always clearly definable. However, for the most part, the following definitions from Pyšek *et al.* (2004) of an alien plant and a naturalised plant have been adopted.

Alien refers to 'plant taxa in a given area whose presence there is due to intentional or unintentional human involvement, or which have arrived there without the help of people from an area in which they are alien'.

Naturalised refers to 'alien plants that sustain self-replacing populations for at least 10 years without direct intervention by people (or in spite of human intervention) by recruitment from seed or ramets (tillers, tubers, bulbs, fragments, etc.) capable of independent growth'. This period of time for a plant's persistence to deem it naturalised was chosen by Pyšek *et al.* (2004), as it takes into account the possible negative effects of short-term 'catastrophic events' such as climatic extremes and outbreaks of pests and pathogens that may impact on a species' existence. For some species early records indicate that a plant's persistence may be less than 10 years and therefore they do not meet the above definition of being naturalised. In these cases a plant's invasiveness, estimated age at time of collection and other observations may justify it being regarded as naturalised.

'Sparingly naturalised', the term used in the Tasmanian vascular plant census (Buchanan 2004), covers those species that do not meet the definition of being naturalised, but are showing signs that they may do so in the future. In essence, the next wave of naturalised plants is likely to come from these species. It is crucial to document these species for weed management purposes.

The status of an individual species in Tasmania should be based upon an assessment of the plant's lifecycle, the size of the population, the species' status in other similar areas and site history.

NATURALISED TAXA IN TASMANIA

1. *Cotoneaster* Medik. *Philos. Bot.* 1: 154 (1789). (Rosaceae)

Description: Evergreen, semi-evergreen or deciduous shrubs or small trees; branches without spines or prickles, often pubescent especially when young. Leaves simple, alternate, entire, petiolate, stipulate. Flowers terminal or axillary, solitary or in many flowered cymes; sepals 5; petals 5, erect or spreading, white, pink or occasionally red; stamens 10–20(–22); ovary inferior or semi-inferior, carpels 2–5. Fruit a pome, red to black (not in Tas.), with 2–5 pyrenes (seeds).

For a comprehensive description see Lu & Brach (2003).

Discussion: *Cotoneaster* is a genus of c. 260 species (Phipps *et al.* 1990), found mainly in temperate north Africa, Asia, central America and Europe, but most abundant in south-west China (Lu & Brach 2003). Several species of *Cotoneaster* have been introduced to Tasmania as garden plants because of their hardiness and striking display of colourful berries during autumn and winter months. Several species have spread from cultivation and become naturalised, most commonly spread by bird-dispersed seed. Buchanan (2004) indicates that four alien species, *C. glaucophyllus* Franch., *C. franchetii* Bois, *C. pannosus* Franch. and *C. simonsii* Baker, are naturalised in Tasmania. Until now there has been no taxonomic account of *Cotoneaster* in Tasmania.

The species of naturalised *Cotoneaster* can be identified using the following key and descriptions. The fruiting branches of the naturalised species are illustrated in pl.1.

Key to the species of *Cotoneaster* in Tasmania

1. Inflorescence more than 20-flowered; petals white and spreading; leaves usually more than 30 mm long ... ***C. glaucophyllus***
1: Inflorescence less than 20-flowered; petals white or pink; leaves usually less than 30 mm long 2
2. Leaves elliptic, rhombic or ovate, sparsely hairy on lower surface, with the lamina visible between the hairs; fruit with 3–4 pyrenes ..... ***C. simonsii***
2: Leaves elliptic or ovate, persistently densely hairy on lower surface, with the lamina obscured by the hairs; fruit with 2–3 pyrenes 3
3. Leaves usually less than 30 mm long, with veins on upper surface inconspicuous; petioles 4–8 mm long; petals white, spreading; fruit with 2 pyrenes..... ***C. pannosus***
3: Leaves usually 20–35 mm long, with veins on upper surface conspicuous; petioles 3–4 mm long; petals white to pinkish, erect; fruit with 2–3 pyrenes ***C. franchetii***

1a. *Cotoneaster glaucophyllus* (Franch.) var. *serotinus* (Hutch.) L.T.Lu & Brach, *Novon*, 12(4): 495 (2002). (Rosaceae)

Illustration: Jeanes & Jobson (1996, p. 579, fig. 118d-e); pl. 1B.

Description: Semi-evergreen shrubs 2–5 m tall. Young stems pubescent, becoming glabrous with age. Leaves (20–)30–60(–80) mm long, 15–25(–40) mm wide, elliptic to ovate, glabrous above, densely hairy below, becoming glabrescent; petiole 5–7 mm long; apex acute to apiculate. Flowers in corymbs, to more than 50-flowered; sepals 1–2 mm long, triangular; petals spreading, 2–3 mm long, orbicular, white. Fruit 4–8 mm long, obovoid, red, with 2 pyrenes.

For a comprehensive description see Lu & Brach (2003).

Discussion: All Tasmanian material can be referred to var. *serotinus*. This taxon was first recognised as a weed in Tasmania in 1987. It is most easily distinguished from the other naturalised species by its relatively large leaves and by the number of flowers that are up to and exceeding 50 per inflorescence.

Distribution and habitat: *Cotoneaster glaucophyllus* var. *serotinus* is native to China where it inhabits mountain regions of the western Yunnan province at altitudes between 1900–3000 m (Lu & Brach 2003). The species is naturalised in New Zealand where it is recorded as a weed of wasteland, scrub in gullies and in gardens (Sykes & Given 1988). In Australia, the species is naturalised in New South Wales (Harden & Rodd 2000), South Australia (Barker *et al.* 2005) and Western Australia (Western Australian Herbarium 1998–). The variety is naturalised in Victoria (Ross & Walsh 2003). In Tasmania, it is recorded as a weed in the East Coast, West Coast and North-West regions (fig. 1). It is associated with disturbed habitats including weedy river banks, roadsides and an abandoned tip site, as well as being found in native vegetation communities adjacent to residential areas. It is commonly grown as an ornamental throughout the state. It is presumed to be more widespread than herbarium records indicate.

First record: 1987, A.M. Buchanan.

Specimens examined: **TASMANIA**: *East Coast region*: Tasmanian Museum & Art Gallery, courtyard of Private Secretary, 4 Jan. 1995, A.M. Buchanan 13837 (HO). Cleburne Point, Risdon Cove, 20 May 1996, A.M. Buchanan 14161 (HO). College Road, opposite Tasmanian Herbarium, University of Tasmania, Sandy Bay, 10 Jun. 1988, A.M. Buchanan 11024 (HO). Old tip site near Proctors Saddle, Hobart, 8 May 1987, A.M. Buchanan 10239 (HO). Sandy Bay Rivulet, upstream from Regent Street, 17 Apr. 2003, M. Baker 98 (HO). *West Coast region*: Outskirts of Tullah on Rosebery side, 18 Jan. 1999, D.E. Symon 15948, (HO, AD, CANB). Queen River. South Queenstown, 50 m E of bridge leading to cemetery, 14 Sep. 2004, M. Baker 496 (HO). Queenstown, park section of Esplanade. Queen River, 100 m S of Penghana Road bridge, 16 Sep. 2004, M. Baker 655 (HO). *North-West region*: Railton on road B13 from Spreyton, 14 Jan. 1999, D.E. Symon 15934, (HO, AD).

1b. *Cotoneaster pannosus* Franch. *Pl. Delavey.* 223 (1890). (Rosaceae)

Illustration: Jeanes & Jobson (1996, p. 579, fig. 118f); pl. 1A.

Description: Semi-evergreen shrub to 2 m tall. Young stems densely pubescent, soon becoming glabrous with age. Leaves 20–30(–38) mm long, 10–15(–17) mm wide, elliptic, glabrous above with veins inconspicuous, densely felty hairy below, with the lamina obscured by the indumentum; petiole 4–8 mm long; apex acute to apiculate. Flowers 6–20 in corymbs; sepals triangular; petals spreading, 3–4 mm long, suborbicular, white. Fruit 5–8 mm long, ovoid, dull red, with 2 pyrenes.

For a comprehensive description see Lu & Brach (2003).

Discussion: *Cotoneaster pannosus* was first recognised as present in Tasmania in 1988. Notes accompanying the collections lack population details or information indicating the species' naturalised status. Without fruit or flowering material, *C. pannosus* could be confused with *C. franchetii*. Characters discussed in the key above, such as petiole length and the relative conspicuousness of veins on the upper leaf surface, may not be sufficient to accurately identify specimens to species.

Distribution and habitat: *C. pannosus* is native to China where it is found in thickets, rocky places and wasteland in mountain slopes at altitudes between 1100–3200 m (Lu & Brach 2003). It is naturalised in New Zealand (Sykes & Given 1988) and has been observed establishing in the vicinity of planted specimens (Heenan *et al.* 1999) as well as in mixed age populations in the grounds of a disused school (Heenan *et al.* 2002). In Australia, it is naturalised in New South Wales, Australian Capital Territory, Victoria (Jeanes & Jobson 1996), South Australia (Barker *et al.* 2005) and Western Australia (Western Australian Herbarium 1998–). In Victoria, it is usually naturalised in cooler regions, near gardens (Jeanes & Jobson 1996). In Tasmania, it is known from two collections, one from a roadside adjacent to a wet gully in the East Coast region and the other from a streambank shrubbery in the North-East region (fig. 2).

First record: 1988, A.M. Buchanan.

Specimens examined: **TASMANIA**: *North-East region*: Symons Creek, Dilston, 1 Jun. 1995, A.M. Buchanan 13867 (HO). *East Coast region*: College Road, opposite Tasmanian Herbarium, University of Tasmania, Sandy Bay, 10 Jun. 1988, A.M. Buchanan 11023 (HO).

1c. *Cotoneaster franchetii* Bois, *Rev. Hort.* 1902: 379 (1902). (Rosaceae)

Illustration: Jeanes & Jobson (1996, p. 579, fig. 118g); pl. 1D.

Description: Semi-evergreen shrub to 3 m tall. Young stems densely pubescent, soon becoming glabrous with age. Leaves (15–)20–35(–40) mm long, 7–15(–20) mm wide, elliptic to ovate, sparsely hairy above with veins conspicuous, densely felty hairy below, with the lamina obscured by the indumentum; petiole 3–4 mm long; apex acute to apiculate. Flowers 5–14 in corymbs; sepals 1–1.5 mm long, triangular; petals 3.5–4 mm long, erect, obovate or elliptic, pink. Fruit 5–10 mm long, obovoid to subglobose, bright red to orange red, with 2–3 pyrenes.

For a comprehensive description see Lu & Brach (2003).

Discussion: *Cotoneaster franchetii* was first recognised as occurring in Tasmania in 1985. Without fruit or flowering material, *C. franchetii* could be confused with *C. pannosus*. Characters discussed in the key above, such as petiole length and the relative conspicuousness of veins on the upper leaf surface, may not be sufficient to accurately identify specimens to species.

Distribution and habitat: *C. franchetii* is native to China where it forms thickets in rocky, sunny mountain regions and open hillsides at altitudes between 1600–2900 m (Lu & Brach 2003). It is naturalised in New Zealand where it has been recorded as a weed of roadsides, scrub, streambanks and forest margins (Sykes & Given 1988). In Australia, it is naturalised in New South Wales (Harden & Rodd 2000) and Victoria (Jeanes & Jobson 1996). In Tasmania, it has been recorded as a weed in the East Coast, North-East, North-West, South-West and West Coast regions (fig. 3). It has been collected from a wide range of habitats including dry coastal bushland, dry sandy slopes bordering saltmarsh, along the banks of the Huon River and in numerous disturbed roadside sites across the state. Based on herbarium records, it is more widespread and common than the similar-looking species, *C. pannosus*. Further surveys would be useful to study their distribution within Tasmania.

First record: 1985, K. Harris.

Specimens examined: **TASMANIA**: *East Coast region*: Pittwater Road, 15 Apr. 1996, A.M. Buchanan 14130 (HO). Tessellated Pavement, Forestier Peninsula, at the stairs leading down to the pavement, 11 Jan. 1999, D.E. Symon 15919, (HO, AD). Channel Highway (B68) 250 m NW of Shot Tower, 3 May 2000, A.M. Gray 1046 (HO). Bush near Hurst Point, Coningham Road, Coningham, 20 Apr. 2003, M. Baker 428 (HO). Lymington Road, Cygnet, 10 Jul. 2003, M. Baker 135 (HO). *North-East region*: Parkside, St Helens, 16 Apr. 1990, A.M. Buchanan 11774 (HO). West Tamar Highway, N of junction with Batman Highway 3 Jun. 1997, A.C. Rozefelds 534 (HO). *South-West region*: Beside N bank of Huon River at Judbury, 13 Jan. 1985, K. Harris (HO). Huon River at Judbury, 2 Apr. 1988, A.M. Buchanan 10896 (HO). *West Coast region*: Outskirts of Strahan on road to Ocean Beach, 20 Jan. 1999, D.E. Symon 15951, (HO, AD). Outskirts of Queenstown on road from Strahan just after turn off to Strahan and by Queenstown Civil Construction Depot, 20 Jan. 1999, D.E. Symon 15956, (HO, AD). Outskirts of Tullah on Rosebery side, 18 Jan. 1999, D.E. Symon 15947, (HO, AD, CANB). Alongside Jones Street, Strahan, 16 Jan. 1998, J.R. Hosking 1558 (HO, AD, CANB, MEL, NE, NSW). Queenstown private garden, Sep. 1978, S.J. Berrigan 134 (HO). *North-West region*: Outskirts, E end of Sisters Beach,

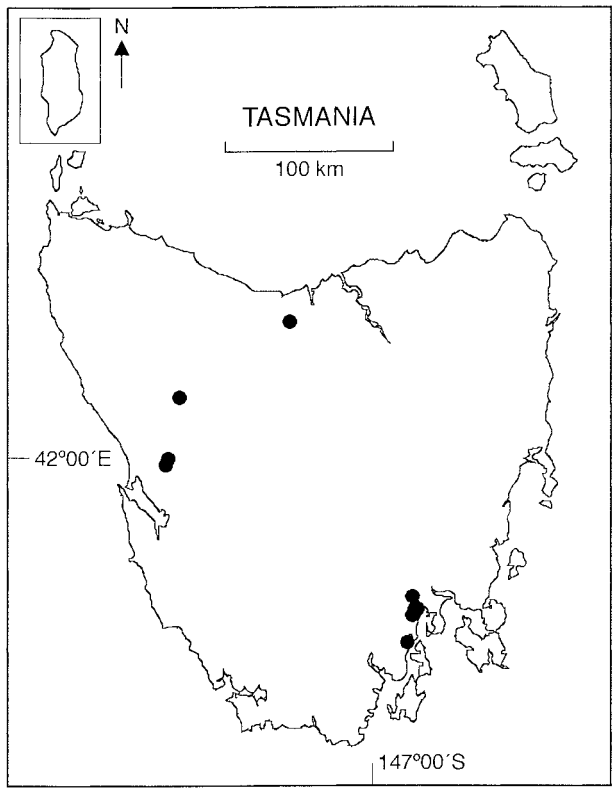

FIG. 1 — Geographical distribution of Cotoneaster glaucophyllus *var.* serotinus *as known from herbarium specimens.*

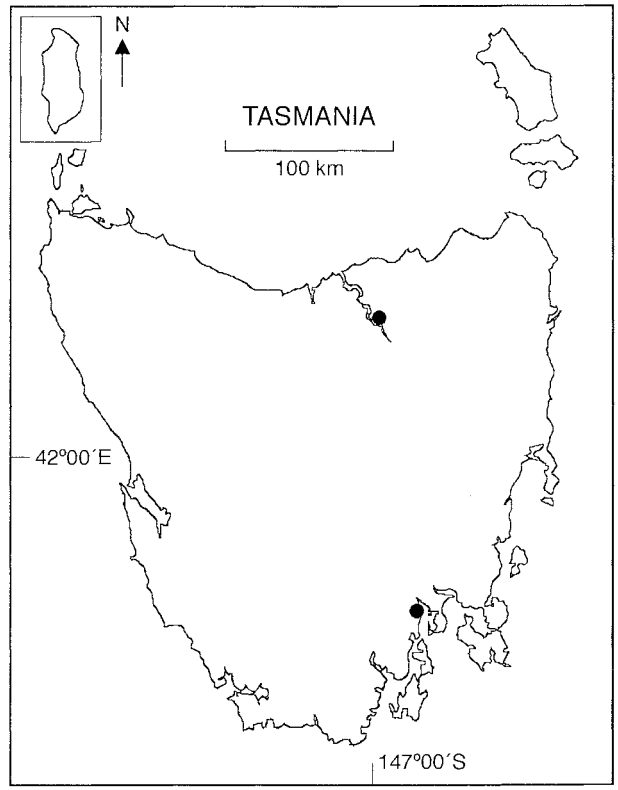

FIG. 2 — Geographical distribution of Cotoneaster pannosus *as known from herbarium specimens.*

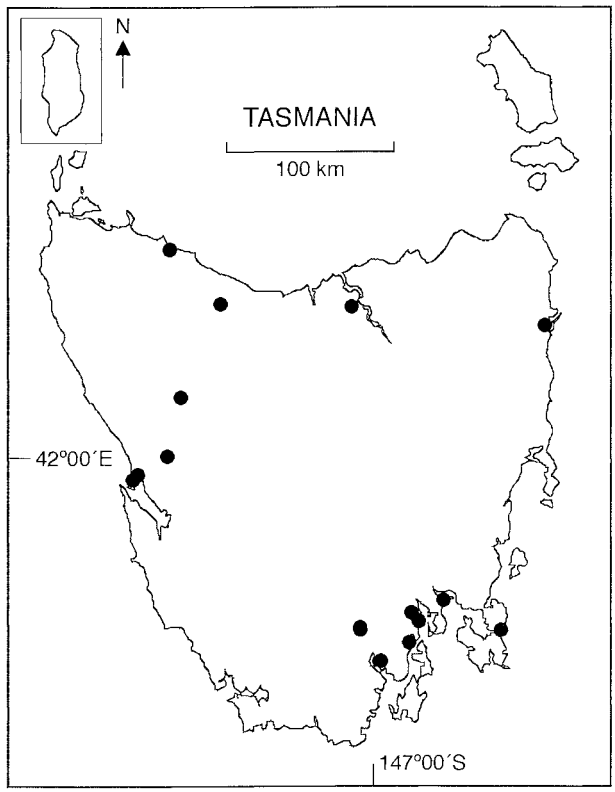

FIG. 3 — Geographical distribution of Cotoneaster franchetii *as known from herbarium specimens.*

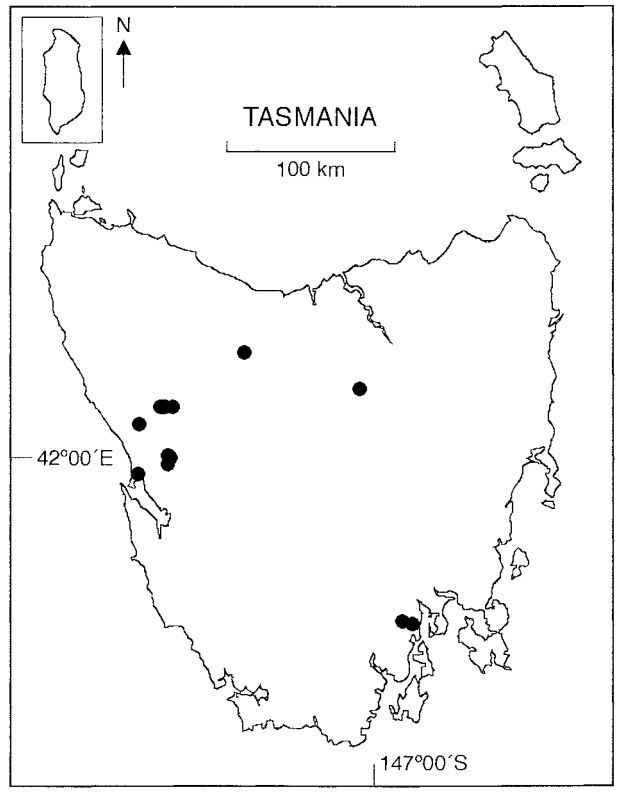

FIG. 4 — Geographical distribution of Cotoneaster simonsii *as known from herbarium specimens.*

17 Jan. 1999, D.E. Symon 15943 (HO, AD). Upper Natone, South Riana Road, 1 Nov. 2004, M. Baker 857 (HO).

1d. *Cotoneaster simonsii* Hort. ex Baker, *Refug. Bot.* 1: t.55 (1869). (Rosaceae)

Common name: Khasia berry, Himalayan cotoneaster.

Illustration: pl. 1C.

Description: A deciduous or sometimes semi-evergreen shrub 2–3(–4) m tall. Young stems densely pubescent, becoming glabrous with age. Leaves sometimes distichous, 15–30 mm long, 7–15 mm long, elliptic, rhombic or ovate; apex acute to apiculate, dark green and sparsely pubescent above, pale green and more densely pubescent below but with the lamina still visible between the hairs; petiole 2–3.5 mm long; apex acute to apiculate. Flowers 1–4(5), in corymbs; sepals 1.5–2 mm long, triangular; petals erect, 2–3 mm long, obovate, white with pink markings. Fruit up to 10 mm long, obovoid, orange-red, with 3–4 pyrenes.

For a comprehensive description see Sykes & Given (1988).

Discussion: *Cotoneaster simonsii* was first recognised as being present in Tasmania in January 1999, by D.E. Symon. Rozefelds *et al.* (1999) recorded *C. simonsii* from two Tasmania specimens. Subsequently other Tasmanian collections that were misidentified as *C. glaucophyllus*, *C. franchetii* and *C. divaricatus* Rehder & E.H. Wilson were re-identified as *C. simonsii* (*C. divaricatus* is not recorded as naturalised in Tasmania). Several recent collections of *C. simonsii* have also been made.

Distribution and habitat: *C. simonsii* is native to the Himalayas and east India (Phipps *et al.* 1990). It has been introduced widely as an ornamental. It is naturalised in New Zealand where it has been noted forming a dominant understorey in conifer plantations (Sykes & Given 1988). It is also naturalised in Britain, Ireland, France and Norway (Browicz 1968). In Australia, it is naturalised in South Australia (Symon 1986), Victoria (Ross & Walsh 2003) and New South Wales (Botanic Gardens Trust 2005). In Tasmania, it is naturalised in the West Coast, East Coast, Midlands and North-West regions (fig. 4). It is most common in the West Coast region where it is found in a wide range of habitats including roadside cuttings in wet sclerophyll forest with mixed rainforest species, coastal woodland with a weedy understorey, a buttongrass plain under weedy *Pinus radiata* and on a river bank in residential Queenstown. In some areas within the West Coast, it is locally common and populations of over 200 plants have been recorded.

First record: 1985, A. Moscal.

Specimens examined: **TASMANIA**: *West Coast region*: Murchison Highway, 4.5 km W of Rosebery, 23 Jan. 1985, A. Moscal 9504 (HO). Outskirts of Queenstown on road from Strahan just after turn off to Strahan and by Queenstown Civil Construction Depot, 20 Jan. 1999, D.E. Symon 15955 (HO, AD). Alongside Jones Street, Strahan 16 Jan. 1998, J.R. Hosking 1557 (HO, AD, CANB, MEL, NE, NSW). South Queenstown, 50 m E of bridge leading to cemetery, 14 Sep. 2004, M. Baker 494 (HO). Queenstown, park section of Esplanade. Queen River, 100 m S of Penghana Road bridge, 16 Sep. 2004, M. Baker 660 (HO). Zeehan, cemetery reserve S of Zeehan, off Henty Road, 15 Sep. 2004, M. Baker 552 (HO). E of Rosebery, Murchison Highway, 15 Sep. 2004, M. Baker 560 (HO). Murchison Highway, 1.5 km W of Rosebery golf course, 15 Sep. 2004, M. Baker 599 (HO). *Midlands region*: Jackeys Marsh Road, Apr. 1996, J. Robin (HO). *North-West region*: Moina Road near Bismuth Creek, 19 Jul. 1992, A.M. Buchanan 12436 (HO). *East Coast region*: Huon Road, c. 2 km NE of Lesley Vale Road junction 05 May 2000, A.M. Gray 1048 (HO).

2. *Genista linifolia* L., *Sp. Pl.* edn. 2, 2: 997 (1763). (Fabaceae)

Common name: flaxleaf broom.

Illustration: Jeanes (1996a, p. 824, fig. 168h); pl. 2A.

Description: Small erect shrub to 2(–3) m tall. Stems pubescent when young, glabrous with age. Leaves sessile, 3-foliate, decurrent at the base and forming three longitudinal ridges where ajoining the stem; leaflets linear to narrow oblanceolate, 10–25(–27) mm long, 2–4(–6) mm wide, with under surface densely covered with appressed grey hairs and upper surface green, sparsely hairy, becoming glabrous with age; apex mucronate; stipules absent. Flowers in short terminal racemes with 5–14 flowers per raceme; calyx pale green, up to 9 mm long, clothed in fine white hairs; corolla bright yellow; standard sparsely hairy on the outer surface, up to 13.5 mm long and 10.5 mm wide; wings up to 13 mm long and 4.5 mm wide; keel hairy on outer surface, to 13 mm long; stamens fused around the carpel. Pod narrow-oblong, densely pubescent, 17–23 mm long, to 6 mm wide, containing 3–7 seeds.

For a comprehensive description see Jeanes (1996a) and Webb (1988, as *Teline linifolia* (L.) Webb & Berthel.).

Discussion: *Genista* L. is a genus of 87 species from Europe, the Canary Islands and the Mediterranean region to western Asia (Mabberly 1997). The genus is represented in Tasmania by three naturalised alien species: *G. monspessulana* (L.) L.A.S. Johnson, *G. stenopetala* Webb & Berthel. and *G. linifolia*. Rozefelds *et al.* (1999) recorded *Genista linifolia* from Tasmania. Based upon a single herbarium specimen. *G. linifolia* was first recorded in Tasmania in 1996 and later in 1998. Both specimens were collected from the Queens Domain, Hobart. Notes accompanying these collections lacked population details or information indicating the species' naturalised status. A visit to the site in 2004 revealed two distinct populations of *G. linifolia*. A third population was recorded at Long Beach, Sandy Bay, in October 2005.

Genista linifolia can be distinguished from other naturalised Tasmanian species, *G. monspessulana* and *G. stenopetala*, by using the following key. The general morphology of the flowering branches of the three naturalised *Genista* species is illustrated in pl. 2.

Key to the species of *Genista* in Tasmania

1. Leaves sessile; leaflets linear to narrow oblanceolate; stipules absent ..... ***G. linifolia***
1: Leaves petiolate; leaflets elliptic to obovate; stipules present..... 2
2. Inflorescences short racemes occurring at the end of short lateral branches, axis < 10 mm long, 3–7-flowered ***G. monspessulana***
2: Infloresences short to long terminal racemes, axis 10-130 mm long, 5–30(–40)-flowered..... ***G. stenopetala***

Distribution and habitat: *Genista linifolia* is native to the western Mediterranean region where it is usually a calcifuge (Gibbs 1968, as *Teline linifolia* (L.) Webb & Berthel.). It is naturalised in New Zealand on dry coastal cliffs and roadsides, probably as an escape from cultivation (Webb 1988). In Australia, it is naturalised in New South Wales,

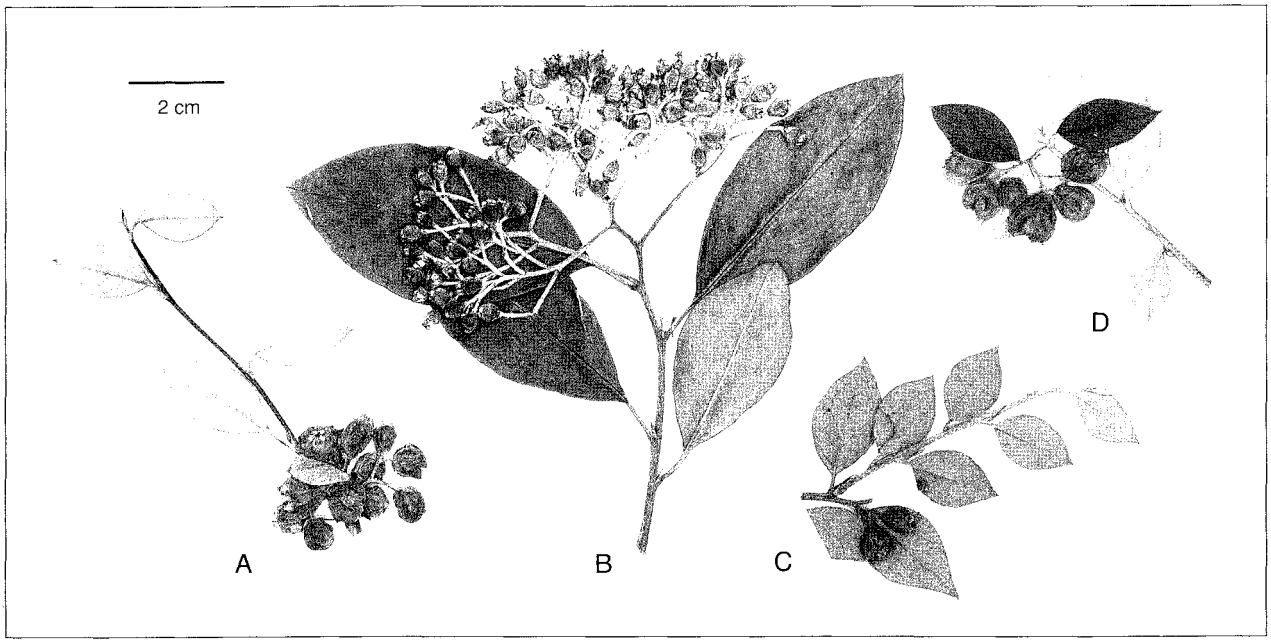

PLATE 1

Fruiting branches of naturalised Cotoneaster *species. A.* Cotoneaster pannosus. *B.* Cotoneaster glaucophyllus *var.* serotinus. *C.* Cotoneaster simonsii. *D.* Cotoneaster franchetii.

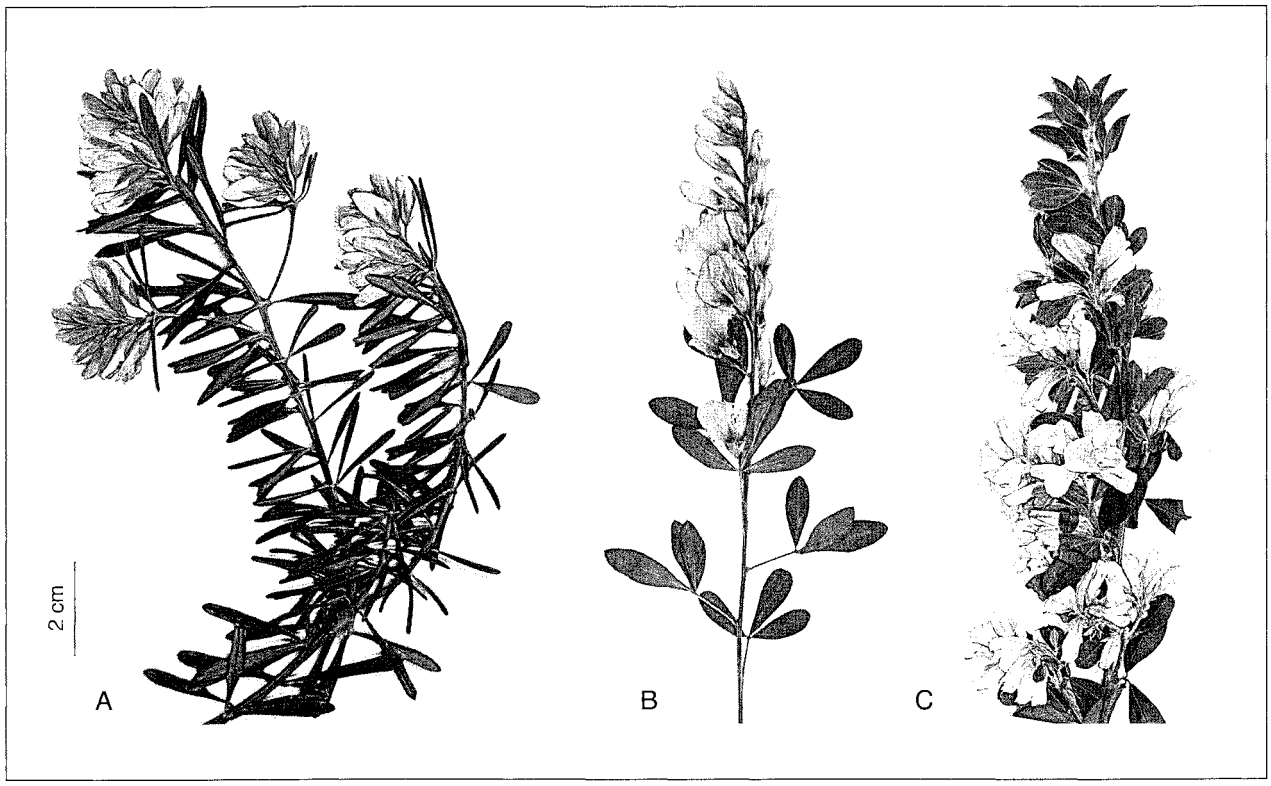

PLATE 2

Flowering branches of naturalised Genista *species. A.* Genista linifolia. *B.* Genista stenopetala. *C.* Genista monspessulana.

Victoria, South Australia and Western Australia, where it is a weed of roadsides, drains, fence lines and encroaches onto pastureland as an escape from cultivation (Parsons & Cuthbertson 2001). In Tasmania, it is known from three populations in the East Coast region (fig. 5). At the Queens Domain one population consisted of a small number of young plants c. 30 cm tall and some larger shrubs. The other, and larger, of the two populations comprised numerous large shrubs to c. 1.5 m tall and several hundred smaller plants to c. 10 cm tall (presumably kept low by regular mowing). This population covered an area of approximately 500 m^2. None of the plants in either of the two populations appeared to be planted. Both populations have since undergone active weed control. At the Sandy Bay site *G. linifolia* was a dominant component of a steep, weed-infested embankment, growing in association with numerous weedy shrubs, including *Lycium ferocissimum* Miers, *Paraserianthes lophantha* (Willd.) I.Nielsen and *Chrysanthemoides monilifera* (L.) Norlindh. Nearly ten years have passed since it was first recorded, but observations indicate that it could become more common as an invader of bushland, roadsides and disturbed sites throughout Tasmania.

First record: 1996, P. Toonen.

Specimens examined: **TASMANIA**: East Coast region: Queens Domain, Hobart, old oil depot site, 14 Jun. 1996, P. Toonen (HO). Queens Domain, at T.S. Derwent [Hobart], 9 Jun. 1998, A.M. Buchanan 15273 (HO). Queens Domain, bike track between Tasman Bridge and Cenotaph, 19 Oct. 2004, M.L. Baker 752 (HO). Long Beach, Sandy Bay, 24 Oct. 2005, M.L. Baker 1646 (HO). **VICTORIA**: Wonthaggi area. Kilcunda Foreshore Reserve, opposite Kilcunda shops on old railway line, 28 Aug. 1989, R.W. Robinson 3 (HO, MEL, CANB). Hurstbridge, corner of Haleys Gully and Broad Gully Roads, 11 Oct. 1981, R.A. Kilgour 99 (HO, MEL). Blackburn, E suburb of Melbourne. Blackburn Lake Sanctuary 22 Sep. 1981, T.B. Muir 6633 (HO, MEL).

3. *Kunzea ericoides* (A.Rich.) Joy Thomps., *Telopea* 2: 379 (1983). (Myrtaceae)

For synonymy see Thompson (1983).

Common name: burgan.

Illustration: Jeanes (1996b, p. 1021, fig. 210j-l); pl. 3A-B.

Description: Upright to somewhat spreading shrub to 3 m tall. Young stems reddish, pubescent, becoming glabrous and stringy barked with age. Leaves subsessile, alternate, oblanceolate, erect to spreading, ± flat, 4–19.5 mm long, 2–3.2 mm wide, with hairs confined to margin and midvein, becoming glabrous with age, dotted with glands (glands more noticeable on dried material), pleasantly aromatic, especially when crushed. Flowers on pedicels 3–6.5 mm long, crowded on leafy side branches and in upper leaf axils; sepals green, triangular, c. 1 mm long; petals white, orbicular, to 2.5 mm diam.; stamens white, 1–4 mm long, some shorter than the petals; ovary with 3–5 locules; style 1.5–2.5 mm long. Fruit to 3 mm long, 3.5–4 mm diam., opening by terminal valves.

For a comprehensive description see Jeanes (1996b). Australian mainland specimens have been described as reaching up to 5 m tall, with leaves to 25 mm long and 4.5 mm wide (Jeanes 1996b).

Discussion: *Kunzea* Rchb. is a genus of 35 species endemic to Australia and one species (*K. ericoides* (A.Rich.) Joy Thomps.) that occurs in Australia and New Zealand (Mabberly 1997). The genus is represented in Tasmania by a single native species, *K. ambigua* (Sm.) Druce, and one naturalised species, *K. ericoides* (Buchanan 2004). *K. ericoides* was first recorded in Tasmania in late 2000 where it had escaped from cultivation into nearby bush and roadside at Kingston (East Coast region). The age of naturalised plants at this site was estimated as ranging between 1 and 10 years old (A.M. Gray pers. comm.). It has since been collected from other sites where plants have escaped from cultivation and colonised adjacent ground.

Kunzea ericoides is a polymorphic species that varies in many vegetative characters (Jeanes 1996b; Wilson 2002). It can be distinguished from the native Tasmanian species *K. ambigua* by using the following key. General morphology of both *Kunzea* species is illustrated in pl. 3.

Key to the species of *Kunzea* in Tasmania.

1. Leaves 2–3.2 mm wide, ± flat; flowers on pedicels 3–6.5 mm long; some stamens shorter than petals; style to 2.5 mm long ..... ***K. ericoides***
1: Leaves 1–1.5 mm wide; concave above and keeled below; flowers ± sessile; all stamens longer than petals; style to 5 mm long ..... ***K. ambigua***

Distribution and habitat: *K. ericoides* is native to Victoria, New South Wales, Queensland and New Zealand (Thompson 1983). Evidence on the Australian mainland indicates that, although native, it has spread beyond its native range (Singer & Burgman 1991) and has also colonised pasture (Kirschbaum & Williams 1991). In Victoria, it is often associated with riparian habitats (Jeanes 1996b). In Tasmania, there are several records from the East Coast region and single records from each of the North-East, Midlands and North-West regions (fig. 6). This species is commonly found in gardens and amenity plantings in the Kingborough Municipality (A.M. Gray pers. comm.). Observations indicate it will become more common as an invader of bushland, roadsides and disturbed sites throughout Tasmania. The species spreads small distances by seed falling close to parent plants (Singer & Burgman 1991). Distant spread of seed might be aided by water movement and by equipment contaminated with seed.

First record: 2000, A.M. Gray.

Specimens examined: **TASMANIA**: *East Coast region*: Summerleas (Kingston) Country Fire Station, 8 Dec. 2000, A.M. Gray 1082 (HO). Summerleas Fire Station, lower Summerleas Road, 1 km from A6 (Huon Highway), 12 Jan. 2001 A. M. Gray 1086 (HO). Lower Summerleas Road fire station grounds, 12 May 2004, A.M. Gray 1379 (HO). Lower Snug, Channel Highway, W side, 100–200 m S of Folk Museum, 22 Dec. 2004, M.L. Baker 1224 (HO). *Midlands region*: Symmons Plains, 15 Oct. 2001, J. Worth (HO). *North-East region*: 3 km N of start of Gardens Road. Before Binalong, N of Grants Lagoon, late 2004–early 2005, P. Stafford (HO). *North-West region*: Stony Rise Government Offices, Devonport, 21 Sep. 2005, M.L. Baker 1614 (HO). **VICTORIA**: Batesford Sanctuary, near Dog Rocks on Moorabool River. Private land, 2 Jan. 1977, G. W. Carr 7305 (HO, MEL). Melbourne (outer suburb); corner of Ringwood, Warrandyte and Croydon Roads, S Warrandyte (private property), 1 Dec. 1982, R.A. Kilgour 338 (HO, MEL). **NEW ZEALAND**: 3 km beyond Rissington, Hawkes Bay, 15 Jun. 1984, A.M. Buchanan 3679 (HO, MEL, NSW).

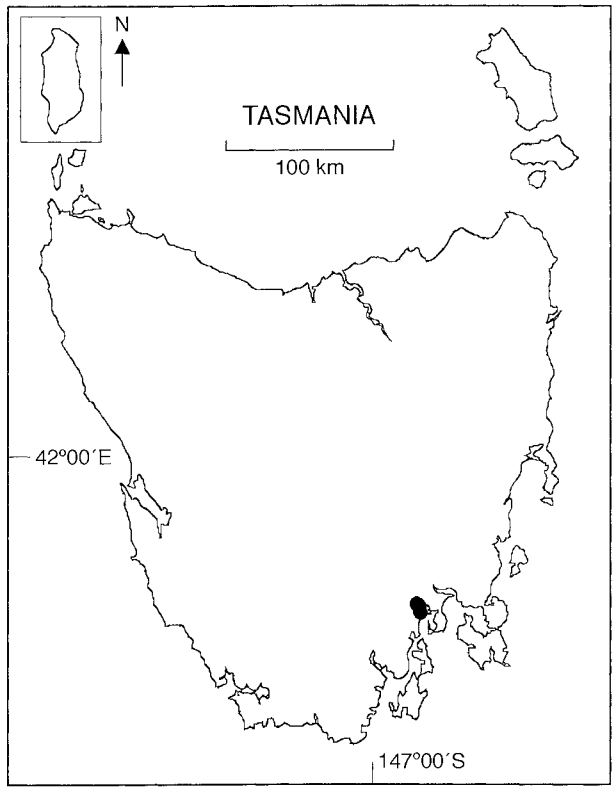

FIG. 5 — Geographical distribution of Genista linifolia *as known from herbarium specimens.*

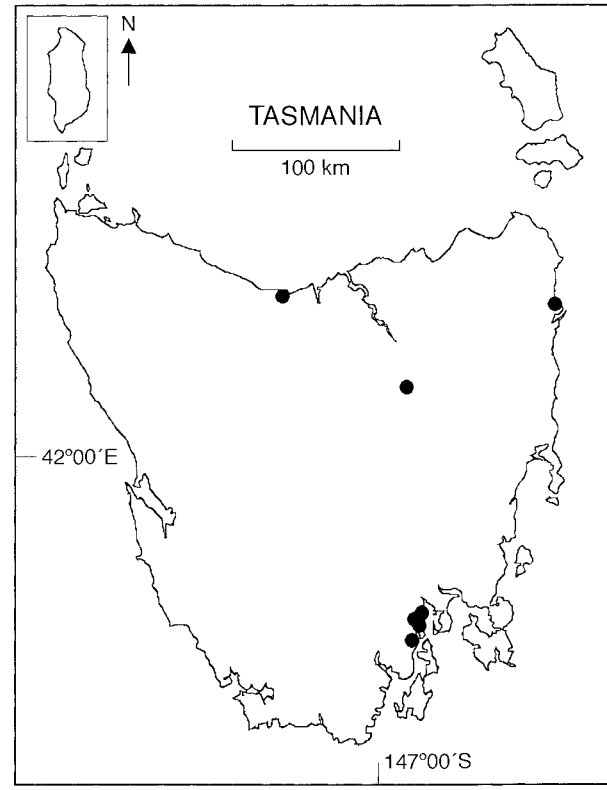

FIG. 6 — Geographical distribution of Kunzea ericoides *as known from herbarium specimens.*

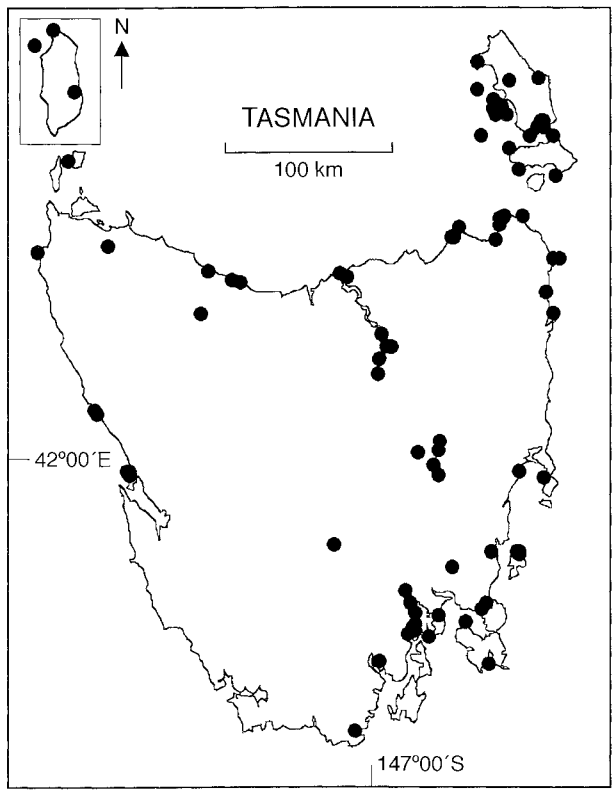

FIG. 7 — Geographical distribution of Plantago coronopus *subsp.* coronopus *as known from herbarium specimens.*

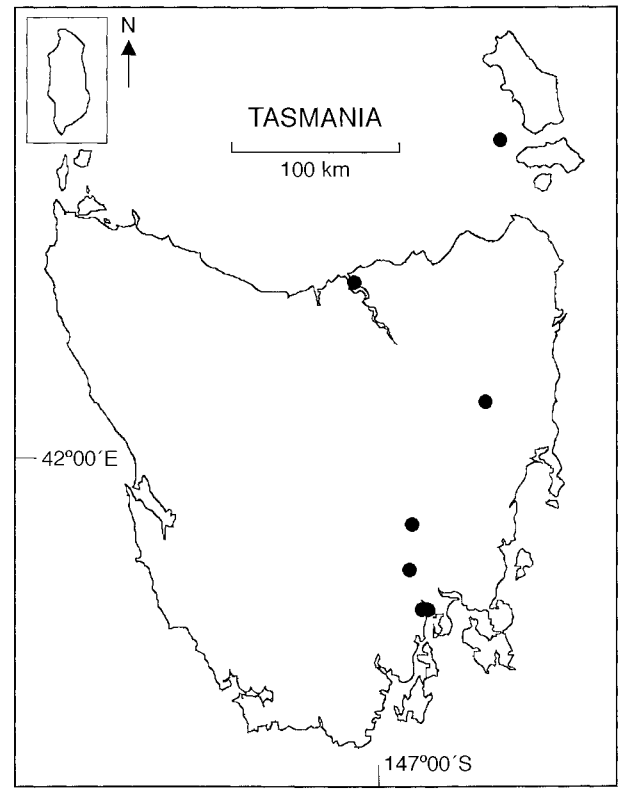

FIG. 8 — Geographical distribution of Plantago coronopus *subsp.* commutata *as known from herbarium specimens.*

PLATE 3

Kunzea. *A-B.* Kunzea ericoides. *A. Flowering branch (left) and fruiting branch (right). B. Close up of inflorescence and leaves. C-D.* Kunzea ambigua. *C. Close up of inflorescence and leaves. D. Flowering branch.*

4. *Plantago coronopus* L., *Sp. Pl.* 1: 115 (1753). (Plantaginaceae)

Common name: buck's horn plantain.

Description: Pubescent taprooted perennial or annual. Leaves in a rosette, oblong to narrow oblong in outline, 1–20 cm long, 0.5–2 cm wide, pinnatifid or deeply toothed, occasionally entire in depauperate specimens. Spike 1–11 cm long, densely flowered; scape to 29 cm long, 0.5–2.3 mm diam.; bracts broadly ovate, 2–3.8 mm long, acuminate. Sepals 4, ovate to elliptic, unequal, 2.1–2.8 mm long, keeled, with keel of anterior sepals more or less equal in width or broader than the membranous margin; corolla tube 1–1.5 mm long, pubescent, with 4 lobes to 1.3 mm long, spreading to reflexed. Capsule ovoid, 2–2.5 mm long; seeds to about 1 mm long, brown.

For a comprehensive description see Jeanes (1999).

Discussion: *Plantago* L. is a cosmopolitan genus of approximately 270 species (Mabberly 1997), represented in Tasmania by 13 indigenous (six of which are endemic) and five alien taxa. An account of the genus in Tasmania is provided by Brown (1991) who lists two subspecies of *P. coronopus* for Tasmania: subsp. *coronopus* and subsp. *commutata* (Guss.) Pilg. Until recently, the Tasmanian vascular plant census (Buchanan 2004) and specimens in the collection at the Tasmanian Herbarium have only recognised *P. coronopus* to specific rank.

Plantago coronopus subsp. *coronopus* can be distinguished from *P. coronopus* subsp. *commutata* by using the following key from Brown (1991). The habit and detail of the inflorescence of the two subspecies is illustrated in pl. 4.

Key to the subspecies of *Plantago coronopus* in Tasmania

1. Scapes slender (0.5–1.8 mm diam.), usually longer than the leaves; bracts mostly longer than the sepals; keel width of anterior sepals ± equal to width of membranous margins ..... ***P. coronopus* subsp. *coronopus***
1: Scapes stout (1.3–2.3 mm diam.), usually shorter than or equal to the leaves; bracts mostly shorter than or equal to the sepals; keel width of anterior sepals broader than membranous margins ... ***P. coronopus* subsp. *commutata***

4a. *Plantago coronopus* L. subsp. *coronopus* (Plantaginaceae)

Common name: buck's horn plantain.

Illustration: Jeanes (1999, p. 468, fig. 91d); pl. 4C-D.

Description: Diagnostic features as in key. Plants with leaves up to 30 cm long have been recorded in Victoria (Jeanes 1999).

Distribution and habitat: *Plantago coronopus* subsp. *coronopus* is native to Europe and western Asia. In Australia, it is naturalised in all states and territories. In Victoria, it is usually found in disturbed sites and is often abundant in near-coastal locations (Jeanes 1999). It is common and widespread throughout Tasmania where it is a weed of turf, pasture, roadsides and disturbed areas. It is particularly common in coastal situations, but has been collected inland at altitudes up to 550 m. It is a very well collected taxon with c. 90 Tasmanian specimens held at HO (fig. 7).

First record: 1881, A. Simson.

Selected specimens examined (of c. 100 collections): **TASMANIA**:

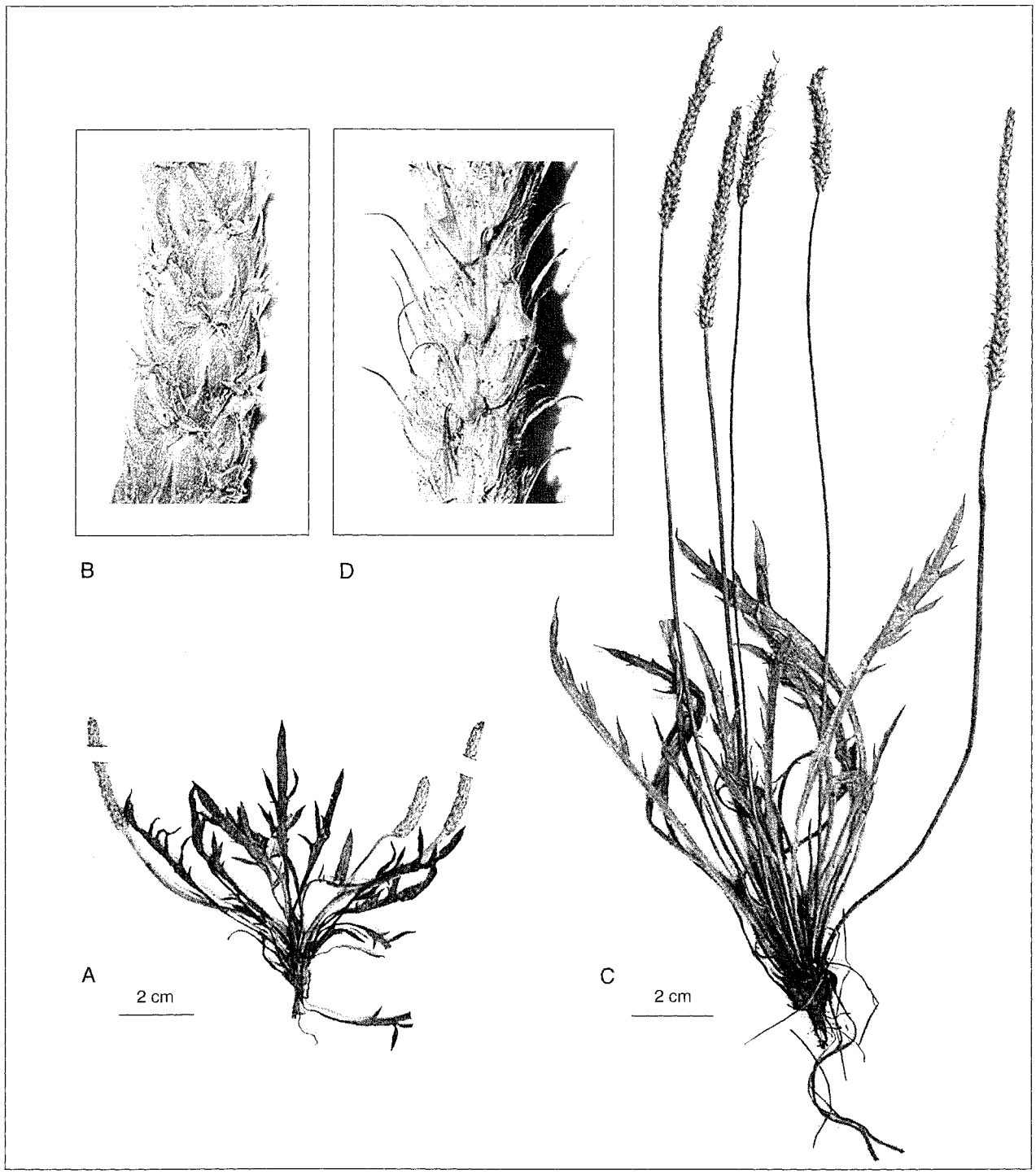

PLATE 4

Plantago coronopus. *A-B. subsp.* commutata. *A. Habit. B. Close up of inflorescence. C-D. subsp.* coronopus. *C. Habit. D. Close up of inflorescence.*

East Coast region: Swansea, Oct. 1881, A. Simson 2177 (HO). Creek Road, New Town, 7 Oct. 1980, D.I. Morris 8086 (HO). *West Coast region*: Ocean Beach, 11 Jan. 1984, A. Moscal 5478 (HO). Granville Harbour, 24 Apr. 1988, P. Collier 3117 (HO). **NEW SOUTH WALES**: Gunning Showground, 13 Jan. 1992, B.J. Lepschi 701 (HO, CANB). **SOUTH AUSTRALIA**: Beachport, 26 Jan. 1969, J. Carrick 2177 (HO, AD).

4b. *Plantago coronopus* L. subsp. *commutata* (Guss.) Pilg., *Repert. Spec. Nov. Regni Veg.* 28: 287 (1930). (Plantaginaceae)
Common name: buck's horn plantain.
Illustration: Jeanes (1999, p. 468, fig. 91e); pl. 4A-B.
Description: Diagnostic features as in key.
Discussion: See under subsp. *coronopus* (above).
Distribution and habitat: *Plantago coronopus* subsp. *commutata* is native to Europe, western Asia and northern Africa. In Australia, it is naturalised in the Australian Capital Territory, New South Wales, Queensland, South Australia, Victoria, Western Australia and Tasmania. In Victoria, it is scattered mostly in the drier inland areas in the western part of the state, often associated with disturbed sites on sandy soils (Jeanes 1999). In Tasmania, subsp. *commutata* has been collected from inland and coastal situations (fig. 8). It is not as common as subsp. *coronopus*, as illustrated by there being only eight Tasmanian specimens in HO.
First record: 1844, R.C. Gunn.
Specimens examined: **TASMANIA**: *East Coast region*: Spring Hill, S of Oatlands on Midland Highway, 24 Jan. 1931, L. Rodway (HO). Hobart, Jan. 1892, L. Rodway 629 (HO). Bellerive, 2 Feb. 1930, F.H. Long 130 (HO). South Esk between Avoca and Ormley, 10 Nov. 1942, H. D. Gordon (HO). Brighton, 'Winton', Dec. 1876, W.W. Spicer (HO). *North-East region*: George Town, 21 Nov. 1844, R.C. Gunn (HO). *Furneaux region*: Hogan Island, 14 Nov. 1984, N.P. Brothers, 206 (HO). Badger Island. Chappell group, 12 km SW of Flinders Island, 30 Nov. 1986, S. Harris (HO). **VICTORIA**: Dookie Agricultural College, 13 Nov. 1937, B. Shoobridge (HO). **NEW SOUTH WALES**: Between Nerriga and Charleyong, on Braidwood to Nowra road, 2 Dec. 1975, R. Pullen 10.214 (HO, CANB).

TAXA OF UNCERTAIN STATUS

5. *Hypericum humifusum* L., *Sp. Pl.* 1: 785 (1753). (Clusiaceae)

Common name: trailing St John's-wort.
Illustration: Walsh (1996, p. 320, fig. 63l-m); pl. 5.
Description: Glabrous, perennial herb. Stems procumbent or decumbent, to 6 cm long, with two longitudinal ridges. Leaves sessile, elliptic to obovate, up to 5 mm long, up to 3 mm wide, with black intramarginal glands and pale glands scattered throughout; apex obtuse. Inflorescence terminal, 1–few-flowered; sepals 5, to 3.8 mm long, slightly unequal in width, with two broad and three narrow, with black glands; petals up to twice as long as sepals, yellow, with black glands towards the apex; stamens ± half as long as petals; styles 3. Capsule equal to or slightly longer than sepals.

This description is based on one specimen held at HO and the comprehensive descriptions in Sykes (1988) and Walsh (1996). The Tasmanian specimen is a depauperate plant. Descriptions of New Zealand material in Sykes (1988) indicate that the species can have stems to 30 cm long and leaves to 14 mm long and 6 mm wide. Walsh (1996) describes Victorian material with leaf dimensions similar to that in New Zealand.
Discussion: *Hypericum* L. is a genus of c. 370 species, mainly found in temperate to tropical regions (Mabberly 1997). The genus is represented in Tasmania by two native species and five naturalised alien species (including *H. humifusum*) (Buchanan 2004). A key including all Tasmanian species can be found in Sykes (1988). Recent work on *Hypericum* by R. Francis (unpublished) recognised the presence of *H. humifusum* in Tasmania, based on one Tasmanian specimen previously identified as the native *H. japonicum* Thunb. This species was previously unrecorded for Tasmania.

Hypericum humifusum somewhat resembles the two Tasmanian native species, *H. japonicum* and *H. gramineum* Forst.f. However, it can be easily distinguished from both species by the presence of black glands on the leaves and flowers (pl. 5).
Distribution and habitat: *H. humifusum* is native to western and central Europe and northern Africa where it inhabits open sites and is usually a calcifuge (Robson 1968). It is naturalised in New Zealand where it is distributed widely and found in a wide range of habitats including 'poorer pastures and tussock grasslands on hill slopes to c. 500 m, on dry stony roadsides and banks, as well as on wet heavy soils in open, but particularly shady areas' (Sykes 1988). In Australia it is naturalised in Victoria where it is said to favour disturbed, open habitats near streams (Walsh 1996).

In Tasmania, it is recorded from one location at Don River, Devonport (fig. 9). The sparse notes accompanying the sole specimen describe the habitat as clay soil. No population details are recorded. This species has not been recorded since its first collection in 1940. Although recently cited in Buchanan (2004) as naturalised, further surveys and collections of this plant would be required to determine its status in Tasmania.
First record: 1940, A.M. Olsen.
Specimens examined: **TASMANIA**: *North-West region*: Don River, Devonport, 9 Jan. 1940, A.M. Olsen (HO).

6. *Solanum americanum* Mill., *Gard. Dict.* edn 8 no.5 (1768). (Solanaceae)

For synonymy see Purdie *et al.* (1982).
Common name: glossy nightshade.
Illustration: Symon (1981, p.38, fig. 1).
Description: Annual or short-lived perennial herb, often bushy, up to 1.3 m high, often with mauve or purplish colouration, glabrous or sparsely clothed with simple hairs. Leaves with petiole 1–4 cm long; lamina ovate or ovate-lanceolate to 12 cm long and 7 cm wide, more commonly to 6 cm long and 3 cm wide, entire or with shallow lobes. Inflorescence umbellate with 4–12 flowers; peduncle to 25 mm long, lengthening to 45 mm long and deflexing as fruit matures; pedicels 5–8 mm long. Calyx 1–2 mm long, strongly reflexed at fruiting stage; corolla 8–9 mm diam., white or tinged purple with a yellow-green centre. Berry 6–9 mm diam., globular, purple-black, glossy, with stone cells.

This description is based on one specimen held at HO and the comprehensive descriptions in Symon (1981) and Purdie *et al.* (1982).
Discussion: *Solanum* L. is a cosmopolitan genus of c. 1700 species (Mabberly 1997). The genus is represented in Tasmania

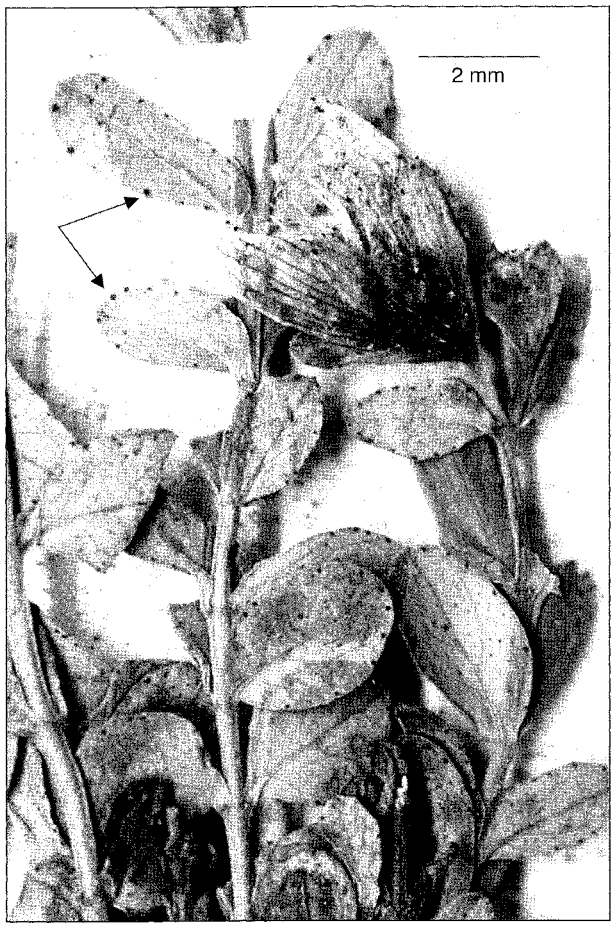

PLATE 5
Flowering stem of Hypericum humifusum. *Arrows point to characteristic black glands.*

by three indigenous and eight naturalised alien species (including *S. americanum*) (Buchanan 2004). Comprehensive treatments of all taxa occurring in Tasmania are found in Purdie *et al.* (1982). In November 2003, specimens of the genus held at the Tasmanian Herbarium were curated as part of the Australian Virtual Herbarium (AVH) project. During their curation, the identity of one specimen, recorded previously as *S. nigrum* L., was redetermined as *S. americanum* by D.I. Morris. This species was previously unrecorded in Tasmania.

Solanum americanum could be confused with *S. nigrum*, the most common weedy species of the genus found in Tasmania. The two species can be distinguished by the following characteristics: the latter has calyx lobes appressed to the fruit and dull black mature fruit, usually without stone cells. The former has calyx lobes strongly reflexed at the fruiting stage and glossy black fruits with stone cells.

Distribution and habitat: *S. americanum* is widespread in tropical and warm temperate regions of the world. In Australia it is thought to be either indigenous or introduced prior to European settlement in Queensland and New South Wales, from where it subsequently spread into Victoria, Northern Territory and Western Australia (Purdie *et al.* 1982). It occurs in a wide range of habitats and colonises areas following disturbance (Symon 1981).

Within Tasmania it is known only from one location at Clarence Point, West Tamar, where it was collected from

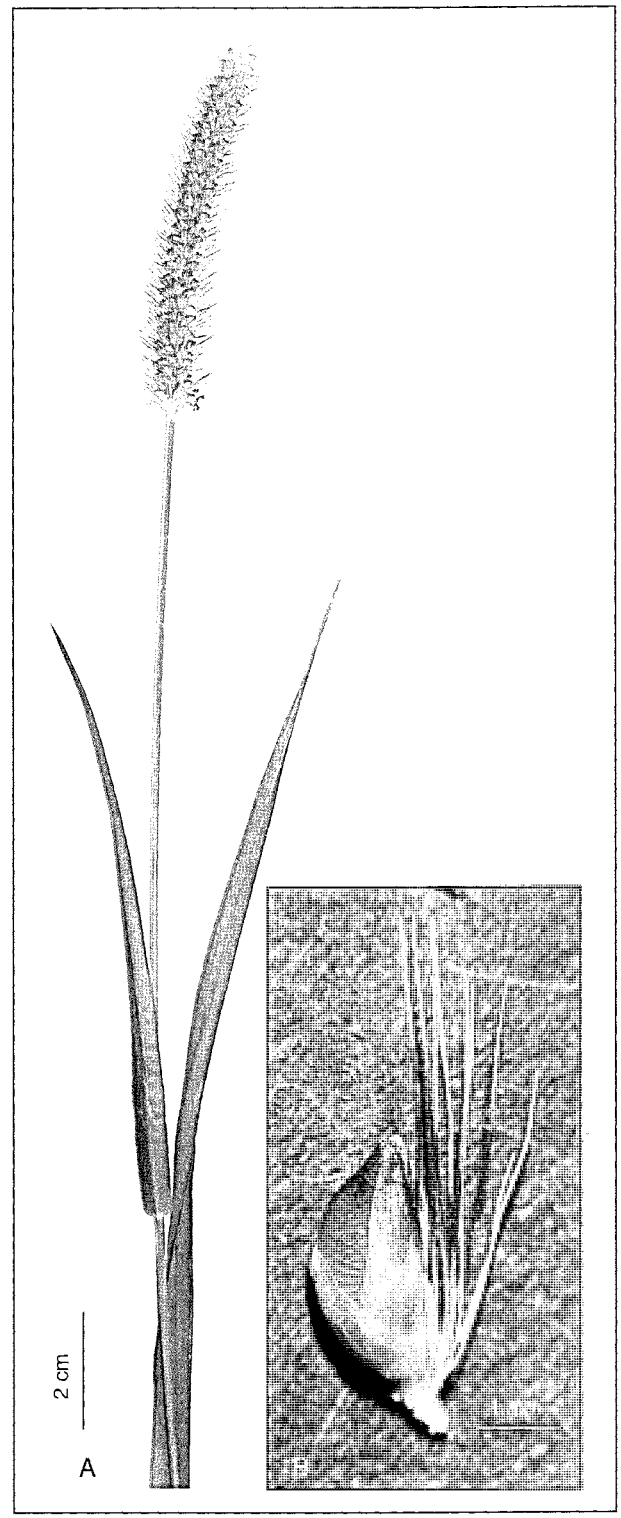

PLATE 6
Setaria pumila *subsp.* pumila. *A. Flowering culm. B. Mature spikelet.*

an area of disturbed ground on the margin of *Eucalyptus viminalis* Labill. forest (fig. 10). Although included in the Tasmanian census by Buchanan (2004) as 'sparingly naturalised', further surveys are required to confirm the extent of its occurrence. A brief reconnaissance of the site in 2004 failed to find this species. The species may be more widespread in Tasmania and has possibly been overlooked in the past due to its resemblance to *S. nigrum*.

First record: 1993, A.M. Buchanan.
Specimen examined: **TASMANIA**: *Midlands Region*: Clarence Point, West Tamar, 28 Sep. 1993, A.M. Buchanan 13453 (HO).

NEW INCURSIONS

7. *Setaria pumila* (Poir.) Roem. & Schult., *Syst. Veg.* 2:891 (1817) subsp. *pumila* (Poaceae)

For synonymy see Webster (1987).
Common name: pale pigeon-grass.
Illustration: Tothill & Hacker (1996, p. 374); pl. 6–7.
Description: Tufted annual, up to 80 cm tall. Leaves with blade 4–10 mm wide, glabrous or with some hairs towards the base; ligule to 1.5 mm long, ciliate. Panicle dense and spike-like, 1–15 cm long. Spikelets 3–3.4 mm long, subtended by several antrorsely scabrous bristles which are 3–10 mm long. Lower glume 30–40% spikelet length, with 3–5 nerves; upper glume 45–65% spikelet length, with 5–9 nerves. Lower lemma usually sterile, as long as spikelet, with 5 nerves; palea from slightly shorter to as long as lemma. Upper lemma as long as spikelet, strongly transversely rugose; palea similar to lemma.

For comprehensive descriptions see Webster (1987) and Sharp & Simon (2002).
Discussion: *Setaria* P. Beauv. is a genus of c. 110 species, mostly found in tropical and warm temperate regions of the world. Many of the species are adventive and significant weeds (Watson & Dallwitz, 1994). Hitherto, the genus was represented in Tasmania by four naturalised, alien species; *S. parviflora* (Poir.) Kerguélen (syn, *S. gracilis* Kunth var. *pauciseta* (Desv.) B.K. Simon), *S. italica* (L.) P. Beauv. *S. verticillata* (L.) P. Beauv. and *S. viridis* (L.) P. Beauv. (Curtis & Morris 1994, Buchanan 2004, Sharp & Simon 2002). *S. pumila* subsp. *pumila* was first recorded in Tasmania in March 2004, when a sample, collected from ground around an amenity tree-planting in West Hobart, was submitted for identification.

This species resembles other naturalised *Setaria* species that occur in Tasmania. *Setaria* species are recognised by having panicles which are cylindrical and spike-like, and by having spikelets which are subtended by one to several scabrous bristles. *S. pumila* subsp. *pumila* can be distinguished from the other Tasmanian species by using the following key, which has been adapted from Curtis & Morris (1994). The general morphology of a flowering culm and detail of a mature spikelet of *S. pumila* subsp. *pumila* are illustrated in pl. 6.

Key to the species of *Setaria* in Tasmania

1. Involucral bristles retrorsely scabrous ... ***S. verticillata***
1: Involucral bristles antrorsely scabrous 2
2. Lemma of upper floret strongly transversely ridged, with apex tapered to a minute apical point 3
2: Lemma of upper floret smooth or granular but not boldly ridged, with apex blunt 4
3. Plants annual, without rhizomes; leaves mostly wider than 5 mm; bristles generally considerably longer than spikelets ..... ***S. pumila* subsp. *pumila***
3: Plants perennial, with horizontal, branched, knotty rhizomes; leaves mostly narrower than 4 mm; bristles generally about as long as spikelets ..... ***S. parviflora***
4. Plant up to 150 cm high; panicle 2.5–30 cm long; glumes persistent; palea of lower floret reduced to a minute scale or absent ..... ***S. italica***
4: Plant up to 75(–90) cm high; panicle 1–10 cm long; glumes falling with the florets; palea of lower floret up to ½ as long as the lemma ..... ***S. viridis***

Distribution and habitat: *S. pumila* subsp. *pumila* is native to the warmer parts of Europe and Asia and possibly northern Australia (Walsh 1994). According to Sharp & Simon (2002) this grass is introduced to Australia and occurs in all Australian mainland states except the Northern Territory. It is a common weed throughout south-east Queensland, the subtropics and warmer temperate regions of the world (Tothill & Hacker 1996). In Victoria, it is uncommon and is an occasional weed of well-watered sites, such as irrigated crops, gardens and riverbanks (Walsh 1994).

Within Tasmania this species is known only from one location in West Hobart, where it was collected from a single tree amenity planting (fig. 11). A survey of the site revealed only a few plants that were growing in association with *Taraxacum officinale* Weber ex F.H. Wigg., *Echinochloa crus-galli* (L.) P. Beauv., *Trifolium repens* L. and *Plantago lanceolata* L. All were growing at the base of the tree covering an area of approximately 1m² (pl. 7). It is likely that the tree in this planting was obtained from a mainland advanced

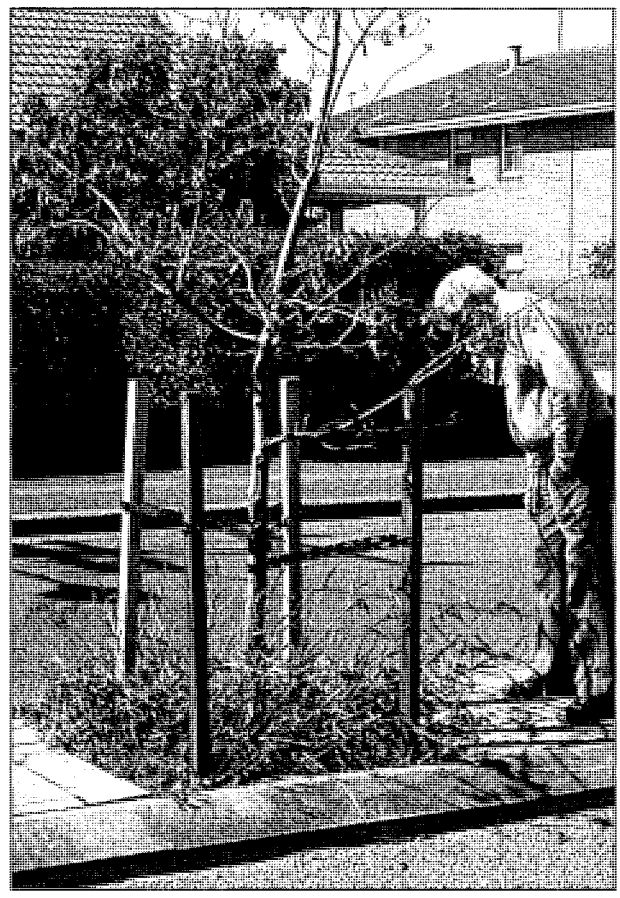

PLATE 7
Habitat of Setaria pumila *subsp.* pumila *at the only known site in Tasmania.*

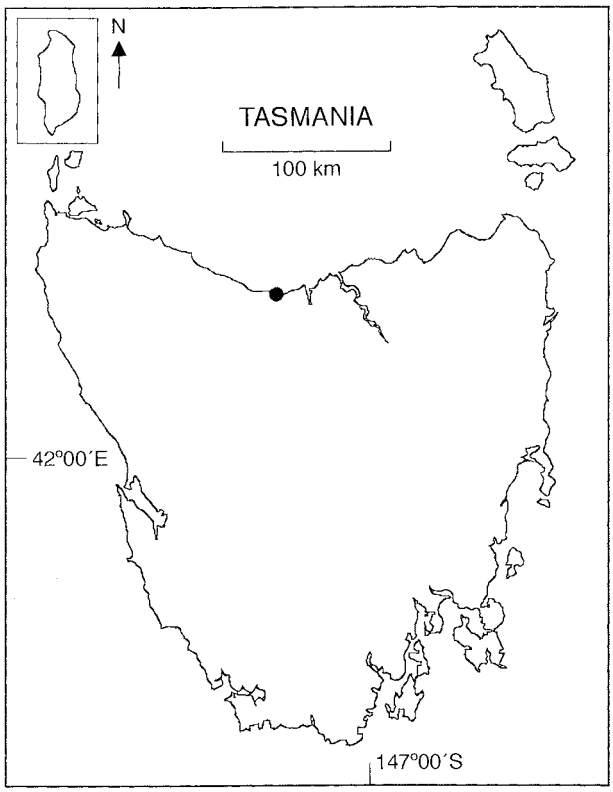

FIG. 9 — Geographical distribution of Hypericum humifusum *as known from herbarium specimens.*

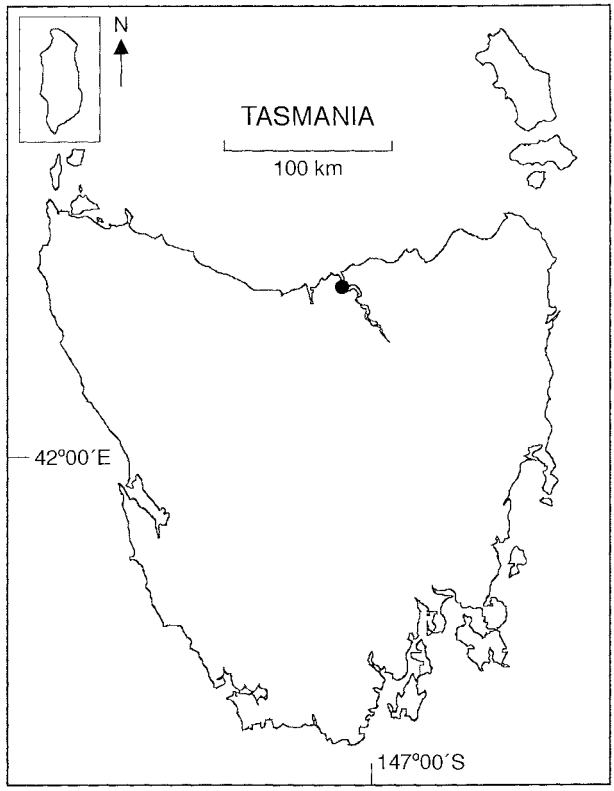

FIG. 10 — Geographical distribution of Solanum americanum *as known from herbarium specimens.*

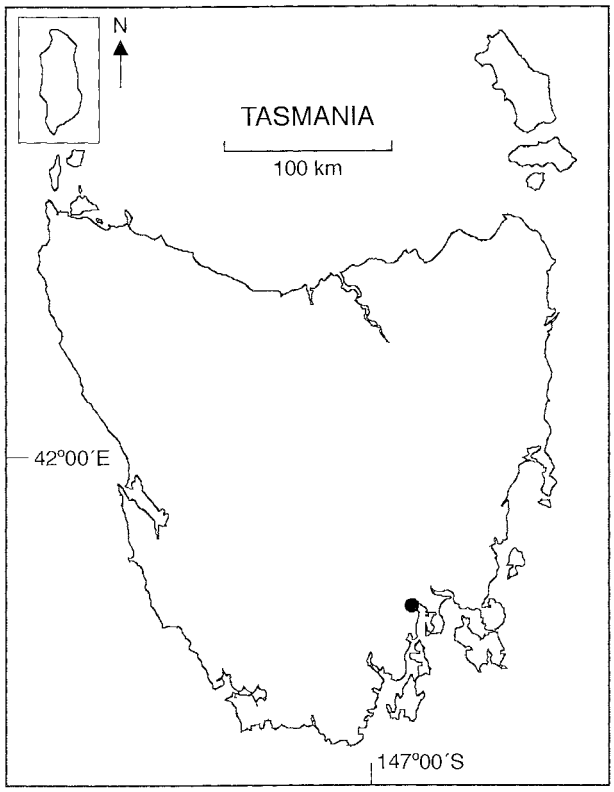

FIG. 11 — Geographical distribution of Setaria pumila *subsp.* pumila *as known from herbarium specimens.*

tree nursery, and the grass possibly was introduced to the site as a contaminant of the tree's root-ball.

A reconnaissance of the surrounding area, including residential gardens and other amenity plantings, failed to find further plants. The plants were removed and destroyed.

First record: 2004, M.L. Baker.

Specimens examined: **TASMANIA:** *East Coast region:* West Hobart, Hill Street, 10 Mar. 2004, M.L. Baker 396 (HO, MEL, CANB, NSW). **QUEENSLAND:** Samford Research Station, 25 May 1966, R.B. Warner (HO). **NEW SOUTH WALES:** Port Jackson district, no date, no collector, ex Herb. Rodway (HO). Richmond River, no date, no collector, ex Herb. Rodway (HO).

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