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An annotated census of the lesser-known naturalised plants of Tasmania

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Introduction

Documenting and maintaining the vouchered evidence of the naturalised flora of a region is an important role of the modern herbarium. Within Australia, the naturalised flora has steadily increased and makes up a significant proportion of the total. For example, in terms of the number of taxa at specific or subspecific rank, 32% of the total vascular flora of Tasmania is considered naturalised (de Salas & Baker 2015); for the whole of Australia, the figure is estimated to be around 13% (Chapman 2009).

The severity of the impacts of naturalised plant species on the environment and on production systems is highly variable. Some taxa are widespread, common and invasive in both agricultural and natural habitats, whereas others may be merely a nuisance in home gardens. Regularly updating, documenting and anticipating where species currently or potentially will lie on this spectrum from relatively 'benign' to 'established management problem' assists in prioritising weed management effort.

Determining whether a taxon is naturalised in a region is a relative proposition. It will depend on the definition of 'naturalised' that is used and how this is interpreted and applied, and on the knowledge of the taxon, its history, ecology and behaviour within that region. Given the numbers of candidate taxa, these considerations are often subjective.

The process by which a plant taxon transitions from the accidental or deliberate introduction of propagules to a region to becoming

Abstract

Documenting the introduced plants of a region is an important aspect of understanding and managing the landscape. The dynamic nature of plant naturalisations means that the status of individual taxa may change with time. Taxa may become more widespread and common; others become the target of eradication initiatives. In some cases, species may be erroneously regarded as part of a flora because definitions of naturalisation may be variously interpreted and/or applied at different points in time. The present appraisal compared a defined set of statuses with the 150 taxa listed in the 2016 edition of *A Census of Vascular Plants of Tasmania, including Macquarie Island* as 'sparingly naturalised'. Eight taxa were found to be better described as 'status uncertain', six as 'previously naturalised', 22 as 'fully naturalised', 37 as 'not naturalised', 38 as 'doubtfully naturalised' and 39 remained as 'sparingly naturalised'.

Keywords: Introduced species, weeds, status.

naturalised within that region is dynamic and dependent upon a taxon successfully negotiating a series of biotic and abiotic barriers. These include environmental, reproductive, and dispersal barriers (Richardson *et al.* 2000). The biology of some taxa renders them incapable of overcoming one or more of the barriers posed at a given location and point in time and, therefore, they cannot be regarded as naturalised. Other taxa may have traits that facilitate a rapid transition to naturalisation. In addition, barriers may be somewhat dynamic and may diminish or strengthen at different points in time either to facilitate or inhibit the process of naturalisation.

Hardcopy 'floras', such as the *Flora of Australia* series (Flora of Australia 1981–), the *Flora of Victoria* (Foreman & Walsh 1993, Walsh & Entwisle 1994; 1996; 1999) and *The Student's Flora of Tasmania* (Curtis 1956; 1963; 1967; 1979, Curtis & Morris 1975; 1994), are foundation works that aid in the identification and documentation of a region's plant taxa. However, not all floras are complete (*Flora of Australia* is a case in point) and their hard-copy nature means that they are soon out-of-date with respect to records of new taxa, range extensions and retreats. This limitation of printed floras highlights a need for publication platforms and resources that are easily and quickly updated. Plant checklists and censuses are one tool that can be used to list naturalised taxa. They can be developed in a way that describes the naturalised status of each taxon in a given region and are far simpler to update than a traditional flora, making them a more reliable indication of a taxon's current status in a defined region. These documents take on many forms, from fully-searchable online databases such as *FloraBase* (WAH 1998–), *eFloraSA* (GSA 2016), *PlantNET* (GNSW 2016), and *Flora of Victoria* (VicFlora 2016), to simple lists such as the *Census of the Vascular Plants of Tasmania* (de Salas & Baker 2018). Individual resources vary in the degree of useful detail that they present for determining whether a species is naturalised or not: some display distribution maps based on collections; others list the number of herbarium specimens per pre-defined botanical region; others may describe a plant's geographic distribution and environmental preferences; or a combination of methods may be used. Distribution and abundance information on exotic taxa is important for their management, because it assists in the appropriate labelling and targeting of those

taxa that pose a threat to biodiversity and agricultural production. Some censuses (e.g. de Salas & Baker 2015) do not usefully discriminate between unequivocally naturalised taxa, non-naturalised taxa and those taxa that sit somewhere in-between.

In Tasmania, the current names and synonyms of native and naturalised vascular plants have been catalogued and tracked in an evolving publication (the *Census*) produced by the Tasmanian Herbarium since 1989 (Buchanan *et al.* 1989; Buchanan 1995; 1999; 2005; 2007; 2009; Baker & Duretto 2011; Baker & de Salas 2012; 2013; de Salas & Baker 2014; 2015; 2016; 2017; 2018). The first edition of the *Census* (Buchanan *et al.* 1989) did not differentiate between native and naturalised taxa and simply listed them in alphabetical order. Further knowledge or information was needed to distinguish which taxa in the list were widespread weeds, rare endemics or common natives. The second edition (Buchanan 1995) rectified this and highlighted those taxa considered to be naturalised in Tasmania. The third edition (Buchanan 1999) included the following status 'sparingly naturalised or known from only one or two populations or collections' but it did not describe the meaning of 'sparingly naturalised'.

The definitions of 'naturalised' and 'sparingly naturalised' have not been adequately distinguished in the Tasmanian *Census* series, leading to a seemingly arbitrary assignment of the latter term to exotic taxa whose status is not well known. A consistent approach to assigning taxa to useful categories between naturalised and merely introduced is needed, especially for taxa not yet treated comprehensively in formal flora accounts or for which substantial new knowledge is now available.

Accurate definitions and their consistent application are useful to land management agencies for guiding weed management budgets and programs, and to determine when exotic species detected as part of developments and other assessments may have some local significance. The purpose of this paper is to introduce and apply a set of status definitions to the 150 taxa treated as 'sparingly naturalised' in the 2016 edition of *A Census of Vascular Plants of Tasmania, including Macquarie Island* (de Salas & Baker 2016).

Methods and Results

We assigned each taxon labelled 'sparingly naturalised'

in de Salas and Baker (2016) to the following status definitions:

Fully naturalised: Taxa that are growing outside of their natural range and outside of cultivation that have been introduced, whether intentionally or unintentionally, by humans, and occur in self-perpetuating, persistent and, where unoccupied niches exist, expanding populations.

Sparingly naturalised: Introduced taxa that are known from a small number of well-documented collections from non-cultivated sources where there is evidence of persistence but no evidence of significant spread or extensive ecological or agricultural impacts.

Doubtfully naturalised: Usually known from only a small number of collections, with notes accompanying the specimens offering scant information as to the population numbers or habitat information that could be used to deduce whether the plants are naturalised or not. They may be: one-off garden escapees that are transient; recorded only from domestic gardens with notes that are insufficient to determine a status; recorded only from a few collections from commercial crops but apparently not persistent; recorded only from old homesteads/abandoned gardens as remnants from previous cultivation.

Previously naturalised: Taxa that were once accepted as naturalised to some degree, but for which evidence indicates that targeted eradication has been achieved.

Not Naturalised: Taxa that lack evidence to suggest they were ever naturalised; that is, those that are known only from cultivated plants and without documented evidence of spread.

Status uncertain: Taxa for which evidence suggests an equivocal status; that is, it is not known whether they are native or naturalised. These taxa are generally characterised by having widespread native distributions in other Australian regions or are cosmopolitan throughout the world. They pose a dilemma for land managers with respect to whether they should be treated as weeds or as native species. The *status uncertain* taxa will not be treated any further in this work, but will be the topic of a future paper.

The primary source of evidence for determining a plant's status in this study is the collection of the Tasmanian Herbarium (HO). Information on some contemporary herbarium sheets was supplemented by personal communication with collectors of the specimens.

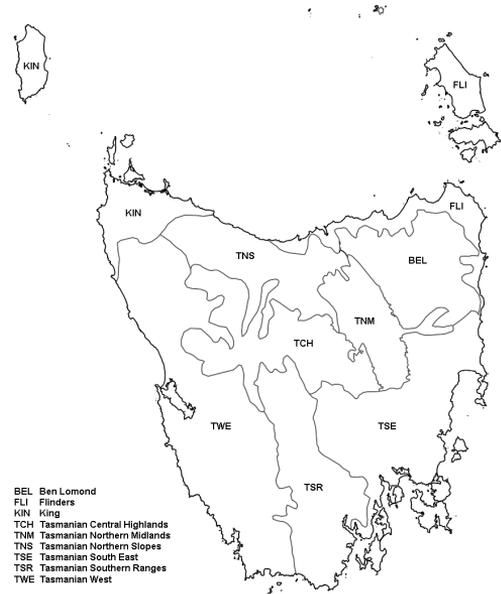


Figure 1. Biogeographic regions of Tasmania. (Adapted from: Interim Biogeographic Regionalisation for Australia (IBRA), Version 7).

Supplementary data from Australia's Virtual Herbarium (<http://avh.ala.org.au/>) was retrieved for records of taxa that are held in the following mainland Australian herbaria: National Herbarium of New South Wales (NSW); Australian National Herbarium (CBG & CANB); National Herbarium of Victoria (MEL); State Herbarium of South Australia (AD) [herbarium acronyms follow Holmgren *et al.* (1990)]. Four taxa listed as 'sparingly naturalised' in the Macquarie Island section of the *Census* are not discussed.

The results of the status determinations are given in the checklist below. Taxa are listed alphabetically within the larger groups of dicotyledons, monocotyledons and gymnosperms. Family classification follows Cronquist (1981) for angiosperms and McCarthy (1998) for gymnosperms, the same systems applied at the Tasmanian Herbarium (HO). Common names, for the most part, follow Wapstra *et al.* (2005).

For each taxon, selected herbarium specimens are listed chronologically and include the earliest and most recent records. Representative specimens from each Tasmanian IBRA bioregion (DoE 2012) a taxon occurs in are also included. Information for each specimen includes the unique herbarium registration code (if a collecting number is not known), the collector and

collecting number, date of collection, location and IBRA region (Figure 1). In most cases, specimens other than those in the Tasmanian Herbarium (HO) have not been seen by the authors (specimens not seen by the authors are annotated 'n.v.') and their identity is assumed to be correct. They are included here for completeness in describing the Tasmanian distribution of those taxa. Information from the specimen collection data is also provided, along with published accounts of the taxon and, where applicable, the authors' observations. The extra-Tasmanian distribution is derived from the Australian Plant Census (CHAH 2015) and state and territory censuses and checklists. It includes those jurisdictions where the taxa are considered fully naturalised or native. Where a state or territory is listed, the taxon is considered to be naturalised unless noted otherwise.

Checklist

Dicotyledoneae

AIZOACEAE

Carpobrotus aequilaterus (Haw.) N.E.Br. (angled pigface)

Selected specimens examined (4 of 6): Roaring [Bay] Beach, 6 miles E [of] Dover (TSR), 23.i.1961, *T. Whaité 2313 and J. Whaité* (NSW [n.v.]); Remarkable Cave (TSE), 3.ii.1961, *J. Gray s.n.* (CBG 7900 [n.v.]); Cape Frederick Hendrick (TSE), 20.ix.1973, *D.A. Ratkowsky 405 and A.V. Ratkowsky* (NSW [n.v.]); Bellerive Bluff foreshore, near Bellerive Yacht Club starting box (TSE), 24.xi.2005, *C. Narkowicz s.n.* (HO 540318!).

Notes: This succulent perennial herb, occasionally grown as an ornamental, is known from coastal habitats in the southeast of Tasmania. It is likely that the populations have arisen from dumped garden refuse or spread from deliberate ornamental plantings. It is more widespread than indicated by formal collections, with plants also known to grow at Taroona Beach and on King Island.

Extra Tasmanian distribution: WA, NSW, Vic.

Status: Sparingly naturalised

Mesembryanthemum cordifolium L.f. [syn. *Aptenia cordifolia* (L.f.) Schwantes] (heartleaf iceplant)

Selected specimens examined (5 of 8): Yellow Beach, Flinders Island (FLI), 10.xi.1969, *J.S. Whinray 1949* (CANB [n.v.];

Creek Road, New Town (TSE), 2.v.1978, *D.I. Morris s.n.* (HO 26463!); South of Scamander (FLI), 18.ii.2003, *A.M. Buchanan 15998* (HO!); Near Knights Point, Windermere Bay, Glenorchy (TSE), 23.vii.2004, *A.M. Gray 1395* (HO!); Porter Hill, Sandy Bay Road (TSE), 22.iii.2010, *A.M. Gray 1960* (HO!).

Notes: This succulent perennial herb, most likely introduced to Tasmania as an ornamental garden plant, is widespread but uncommon and is known from localised populations at Flinders Island, Scamander and the greater Hobart region. It has been recorded in roadside vegetation, tip sites, high tide zones and in bushland adjacent to residential areas, but is as yet not considered fully naturalised due to its disjunct and usually highly localised occurrence.

Extra Tasmanian distribution: WA, SA, Qld, NSW, Vic.

Status: Sparingly naturalised

AMARANTHACEAE

Amaranthus graecizans L. subsp. *silvestris* (Vill.) Brenan (prostrate pigweed)

Specimen examined: Howick Street, Launceston (TNM), 6.ii.1981, *B.H. Hyde-Wyatt s.n.* (HO 38954!).

Notes: This low-growing, mat-forming annual is known in Tasmania from a single specimen collected from a residential garden in Launceston. There are no notes accompanying the specimen to indicate its status at the site, nor any evidence to suggest it is naturalised in Tasmania.

Extra Tasmanian distribution: SA, Vic.

Status: Not naturalised

Amaranthus spinosus L. (spiny pigweed)

Specimen examined: Perth Forestry Nursery (TNM), 15.ii.1995, [collector unknown] (HO 411361!).

Notes: This annual herb is known in Tasmania from a single specimen collected from a plant nursery. Its status at the site is unknown and there is no evidence to suggest it naturalised in Tasmania.

Extra Tasmanian distribution: NT, Qld, NSW

Status: Not naturalised

APIACEAE

Aegopodium podagraria L. (goutweed)

Specimens examined: New Town (TSE), 23.xii.1968, *D.I. Morris s.n.* (HO 52091!); Hobart, New Town Research Laboratory grounds (TSE), 31.xii.1976, *D.I. Morris s.n.* (MEL0532712 [n.v.];

New Town Research Laboratories (TSE), 1.i.1977, *D.I. Morris s.n.* (HO 25220!).

Notes: This perennial herb is known in Tasmania from the grounds of the State agricultural department's laboratories in suburban Hobart and from a garden nearby. One specimen states 'New introduction into Tasmania'. However, there is no information accompanying the collections that offers any detail regarding its status at these sites and there is insufficient evidence to suggest it is naturalised in Tasmania.

Extra Tasmanian distribution: NSW, Vic.

Status: Not naturalised

ASTERACEAE

Centaurea calcitrapa L. (star thistle)

Specimens examined: Southern Tasmania, 1889, *J. Fletcher s.n.* (MEL2157846 [n.v.]); Near Oatlands (TSE), xi.1899, *L. Rodway 445* (HO!); Circular Head (TNS), 12.iv.1913, *R.A. Black s.n.* (MEL2300850 [n.v.]); Sheffield, area school (TNS), 19.ii.1947, *M.J. Firth s.n.* (HO 53308! & HO 10525!).

Notes: Curtis (1967) described the distribution and habitat of this annual or biennial herb as "occasional in waste places in the north of the State". It is listed in Rodway (1903) but without any notes on its distribution. It has not been recorded in Tasmania in more than 70 years and no contextual details accompany any specimens, making a determination of its status difficult. The presence of several early records from widely separated regions indicates that it may, in the past, have been naturalised to some degree. However, it seems likely that it no longer occurs in the State.

Extra Tasmanian distribution: WA, SA, Qld, NSW, ACT, Vic.

Status: Doubtfully naturalised

Centaurea cyanus L. (cornflower)

Specimens examined: Launceston (Cultivated?)(TNM), 23.x.1978, *B.H. Hyde-Wyatt s.n.* (HO 586771!); Bothwell, 2 km E of town, Lake Highway (TSE), 12.v.2008, *M.L. Baker 1879* (HO!); Kettering (TSE), 16.xi.2013, *M. Wapstra 1730* (HO!).

Notes: This occasionally cultivated annual herb is known in Tasmania from three widely separated records. One is possibly a cultivated plant as it was recorded from a garden. The others were collected from roadside verges in rural parts of the State. The presence of sporadic plants from disjunct regions indicates that it

may have the potential to become naturalised to some degree in the State.

Extra Tasmanian distribution: NSW

Status: Doubtfully naturalised

Centaurea solstitialis L. (St Barnaby's thistle)

Specimen examined: Meander Valley, near Deloraine (TNS), i.1916, *L. Rodway 444* (HO!).

Notes: This annual herb with spiny flower heads is known in Tasmania from a single specimen collected more than 100 years ago. Curtis (1963) described its distribution and habitat as "an occasional weed in the north of the State." There is no information accompanying the collection that offers any detail regarding its status at the site and there is insufficient evidence to suggest it naturalised in Tasmania.

Extra Tasmanian distribution: WA, SA, Qld, NSW, Vic.

Status: Not naturalised

Cynara cardunculus L. subsp. *flavescens* (Wiklund artichoke thistle)

Specimens examined: McRobies Gully, Hobart (TSE), 27.vi.1986, *A.M. Buchanan 8802* (HO!); Bridgewater, near site of former Bridgewater Railway Station (TSE), 6.v.2003, *M.L. Baker s.n.* (HO 521921!).

Notes: This spiny thistle, related to the globe artichoke (*C. cardunculus* L. subsp. *cardunculus*), is known in Tasmania from two collections from the greater Hobart area. One specimen is noted as possibly being a cultivation escapee spreading into vacant land. The population was made the target of eradication and is considered to have been eradicated (K. Stewart pers. comm.). The other specimen is presumed to be from dumped garden refuse and has not been recorded since.

Extra Tasmanian distribution: WA, SA, NSW, ACT, Vic.

Status: Previously naturalised

Lactuca serriola L. forma *integrifolia* (Gray) S.D.Prince & R.N.Carter (prickly lettuce)

Specimens examined: Tomahawk Refuse Site (FLI), 11.i.2004, *M.L. Baker 1323* (HO!); Blackwood Creek (TNM), 29.i.2011, *R. Smith s.n.* (HO 561952!).

Notes: This erect prickly annual herb is known in Tasmania from two specimens, one from a weed-infested tip site surrounded by coastal bushland in the State's northeast, and the other as a crop weed. No collection details describing the plants population or status at either of the sites are given. The taxon may be

overlooked for the typical form, which is common and widely naturalised in Tasmania.

Extra Tasmanian distribution: SA, NSW, ACT, Vic.

Status: Doubtfully naturalised

***Matricaria chamomilla* L. (chamomile)**

Specimens examined: Scotts Road, Risdon Vale (TSE), 3.xi.1993, *H. Blackburn s.n.* (HO 517199!); Scotts Road, Risdon Vale (TSE), 29.xi.1993, *D.I. Morris s.n.* (HO 409495!).

Notes: This occasionally cultivated annual herb is known in Tasmania from two specimens that are likely to have been collected from the same site. The collections are devoid of useful notes that give any indication of the status at the time of collection other than being thought to have arisen from bird seed. It is not known if the plants have persisted at this site.

Extra Tasmanian distribution: WA, SA, NSW

Status: Doubtfully naturalised

***Onopordum acaulon* L. (stemless thistle)**

Specimen examined: 'Charlton Park', near Melton Mowbray, North of Mt Mercer trig point (TSE), 6.xii.2002, *G. Raphael s.n.* (HO 520128!).

Notes: This low-growing, rosette-forming thistle is known in Tasmania from a highly localised population of fewer than 20 plants that grew where imported cattle feed was spread. The population was made the target of eradication and is considered to have been eradicated (K. Stewart pers. comm.).

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Previously naturalised

***Pilosella officinarum* Vaill. subsp. *officinarum* [syn. *Hieracium pilosella* L.] (mouse-ear hawkweed)**

Specimens examined: 'St Peters Pass', N of Oatlands (TSE), 6.i.2001, *A. Woolley s.n.* (HO 510506!); 'St Peters Pass' property, [near Oatlands] (TSE), 31.i.2001, *A.M. Buchanan 15829* (HO!).

Notes: This perennial herb is known in Tasmania from a single population growing on a rural fence line between a roadside reserve and pasture. Shortly after its discovery, the infestation site was excavated and deep buried and eradication was achieved (Rudman & Goninon 2002, as *H. pilosella*). Before it was eradicated, it was the dominant component of the vegetation over an area of approximately 2,500 m². Monitoring of the site until 2006 did not find any further plants (K. Stewart pers. comm.). *Pilosella officinarum* is an invasive weed in

cool climate areas of North America and New Zealand.

Extra Tasmanian distribution: ACT, NSW (recent incursion (P. Turner pers. comm.))

Status: Previously naturalised

***Senecio angulatus* L.f. (scrambling groundsel)**

Selected specimens examined (6 of 11): Moonah (TSE), 24.iv.1982, *D. Secomb s.n.* (HO 569321!); Kaoota Road, Allens Rivulet (TSR), 11.iii.2001, *L.H. Cave s.n.* (HO 511532!); Strahan, Regatta Point (TWE), 14.ix.2004, *M.L. Baker 543* (HO!); Whitemark, old tip site (FLI), 14.i.2007, *A.M. Buchanan 16638* (HO!); Tasman Island, garden of Quarters 3 (TSE), 29.ix.2007 *P.A. Tyson 580* (HO!); South Arm, Blessington Street (TSE), 24.viii.2010, *P. Norris s.n.* (HO 563422!).

Notes: This vigorous scrambling shrub, occasionally grown as an ornamental, is widespread and localised throughout the state but is most often encountered on the east and southeast coasts. It has been recorded smothering native vegetation in a variety of habitats including tip sites, roadsides, gullies, sand dunes and remnant coastal vegetation; in some cases it dominates large areas of c. 1,000 m². It is more widespread than indicated by formal collections, with Wapstra *et al.* (2008) reporting populations at Eddystone Point on the northeast coast and in the upper Derwent Valley.

Extra Tasmanian distribution: WA, SA, Qld, NSW, Vic.

Status: Naturalised

***Taraxacum kok-saghyz* L.E.Rodin (Russian dandelion)**

Specimens examined: Cressy Experimental Farm (cult.) (TNM), 27.x.1943, *W.M. Curtis s.n.* (HO 53346! & HO 15165!).

Notes: This perennial herb is known from two collections that appear to be duplicates. Curtis (1963) stated that it was "cultivated at Cressy during the war of 1939–1945 as a source of latex, a possible substitute for rubber; probably persisting locally". It has not been recorded since. See Figure 2.

Extra Tasmanian distribution: None

Status: Not naturalised

BASELLACEAE

***Anredera cordifolia* (Ten.) Steenis (Madeira vine)**

Selected specimens examined (5 of 6): Launceston (TNM), 3.v.1965, [collector unknown] (HO 506475!); Clark Island, near original homestead (FLI), ix.1980, *S. Harris 113* (HO!); South



Figure 2. *Taraxacum kok-saghyz* has not been recorded since it was cultivated as a crop plant in the 1940s. It is considered to be not naturalised in Tasmania.

Street, Bellerive (TSE), 10.iv.1985, *D.I. Morris 8551* (HO!); 15 Channel Street, Burnie (TNS), 2000, *K. Kirkely s.n.* (HO 510807!); 145 Davey Street, Hobart (TSE), 3.v.2001, *D.I. Morris 86734*, (HO!).

Notes: This ornamental perennial vine was first recorded in waste places at Launceston. Subsequent collections are from disjunct locations throughout the State and are associated with suburban and city gardens. There is no evidence of spread from these sites, some of which appear to have been eliminated (e.g. HO 102250, HO 328680), while the current status of others is unknown. Curtis (1967) described it as “a garden escape, naturalised locally in the north of the State”. However, there is no evidence to support this.

Extra Tasmanian distribution: WA, SA, Qld, NSW, Vic.

Status: Doubtfully naturalised

BETULACEAE

Alnus cordata (Loisel.) Duby (Italian alder)

Specimens examined: St Marys (BEL), viii.1950, *H.N. Barber s.n.* (HO 36203!); Watchorn Street, Hobart (cult.) (TSE), 19.v.2004, *M.F. Duretto 1744* (HO!).

Notes: This ornamental deciduous tree is known in Tasmania from two widely-spread collections, one from a cultivated plant in Hobart and the other from the town of St Marys. Curtis (1967) stated that it is “recorded from the east coast at St Marys and from river banks near New Norfolk”. However, no specimens from New Norfolk have been seen and there are no notes accompanying the specimen from St Marys to indicate its status at the site. **Extra Tasmanian distribution:** None

Status: Not naturalised

Alnus glutinosa (L.) Gaertn. (black alder)

Specimens examined: Huonville, picnic area E of bridge (cult.) (TSR), 8.i.1984, *M. Williams s.n.* (HO 76693!); Macquarie Street, Hobart (cult.) (TSE), 27.v.1988, *W.M. Curtis s.n.* (HO 110455!); Murray Street, 10 m N of Melville Street, Hobart, (cult.) (TSE), 19.v.2004, *M.F. Duretto 1745* (HO!); Queenstown, CMT Industrial Estate (TWE), 9.ii.2007, *G. Cordery s.n.* (HO 544184!); King River Delta, Lettes Bay (TWE), 7.viii.2007, *M.L. Baker 1807 and A. Laird* (HO!).

Notes: This deciduous tree is cultivated in Tasmania as an ornamental. Two of the five collections appear to be from non-cultivated plants. One was a single plant growing with *Baloskion tetraphyllum* on accumulated sediment at the mouth of the King River at Lettes Bay, Strahan. The other collection, from the Queen River,

Queenstown, has the following notes attached: “*Alnus* is spreading along Queen River. The extent of alder tree dispersion in the Queenstown locale is unknown at present; further investigations are required to determine populations”. Without further evidence it would be premature to assign a naturalised status to this species.

Extra Tasmanian distribution: NSW, ACT

Status: Doubtfully naturalised

BORAGINACEAE

Lithospermum officinale L. (gromwell)

Selected specimens examined (5 of 9): First Basin, Launceston, Midlands (TNM), 27.xi.1938, *A.M. Olsen s.n.* (HO 7842!); Entrance to [Cataract] Gorge, Launceston (TNM), xi.1945, *W.M. Curtis s.n.* (HO 505445!); Trevallyn Reserve (TNM), 11.iii.2006, *R. Skabo s.n.* (HO 538846!); Thrower Street, Launceston (TNM), 4.xii.2007, *R. Skabo s.n.* (HO 546890!); Launceston (TNM), x, *S.G. Hannaford s.n.* (HO 7841!).

Notes: This perennial herb is locally naturalised in the Launceston area, particularly near Cataract Gorge, where it has persisted for nearly 80 years since it was first recorded. Collection notes indicate that it forms relatively large and persistent populations. The source of the plants is not known. Curtis (1967) described the distribution and habitat as “occasional in waste places”, but there is no evidence that it ever extended beyond the Launceston area.

Extra Tasmanian distribution: None

Status: Naturalised

Symphytum × uplandicum Nyman (Russian comfrey)

Specimens examined: Huon (TSR), 1957, *F. Fricke s.n.* (HO 505422! & HO 8014!); Underwood, junction of Underwood and Ryans Roads (BEL), 11.ii.2009, *M.L. Baker 1955* (HO!); Mole Creek (TNS), 2.ii.2008, *A.M. Buchanan 16859* (HO!); Kingston, old ‘Linden Rise’ property (TSE), 14.ii.2013, *M. Wapstra 1540* (HO!).

Notes: This erect perennial herb is known in Tasmania from several disjunct occurrences. Associated collection notes regarding the size and area of the populations are limited. However, the Underwood and Kingston collections are reported to consist of one and two plants respectively. Curtis (1967) noted its distribution in Tasmania as “occasional on roadsides as an escape from cultivation”.

Extra Tasmanian distribution: Vic. (sparingly established)

Status: Doubtfully naturalised

BRASSICACEAE***Brassica × juncea* (L.) Czern. (Indian mustard)**

Specimens examined: Hobart, Queens Domain, corner of Domain Highway and Botanic Gardens Road (TSE), 3.vi.1998, *A.M. Buchanan 15268* (HO!); Hobart, Queens Domain, strip of remnant bushland between bicycle track and Lower Domain Road (TSE), 14.x.2015, *M.L. Baker 3006* and *A. Muyt* (HO!).

Notes: This annual herb is known in Tasmania from a localised population at the Queens Domain, Hobart, where it has persisted for nearly 20 years since it was first recorded. The population covers an area of approximately 30 x 30 m in a weed-infested grassy woodland. Its persistence at the site and its ability to reproduce and regenerate indicate that it is naturalised to some degree. Its localised distribution would suggest that it is only sparingly naturalised.

Extra Tasmanian distribution: WA, NT, SA, Qld, NSW

Status: Sparingly naturalised

***Brassica oleracea* L. (wild cabbage)**

Selected specimens examined (6 of 12): Hobart (TSE), xii.1903, *L. Rodway 32a* (HO!); Mole Creek (TNS), xii.1908, *L. Rodway 32* (HO!); Sandy Bay, Hobart (cult.) (TSE), 17.ii.1952, *W.M. Curtis s.n.* (HO 15478!); Foreshore, Town Point (TNM), 11.iii.1961, *J. Somerville s.n.* (HO 15467!); New Year Island (KIN), 20.xi.1987, *N.P. Brothers s.n.* (HO 441808!); Christmas Island off King Island (KIN), 3.i.2002, *K. Medlock s.n.* (HO 519030!).

Notes: This annual herb has been collected widely throughout Tasmania and has been recorded from most bioregions including some outlying sites such as smaller Bass Strait islands. Notes associated with the collections do not indicate the abundance or status of the plants from these sites. Early collections are presumed to have originated from kitchen gardens. Curtis (1956) commented that it "...is found occasionally as an escape from cultivation", but did not treat it as naturalised. Despite the numerous collections, there is little evidence to support even a sparingly naturalised status. See Figure 3.

Extra Tasmanian distribution: WA, NT, SA, NSW, Vic.

Status: Doubtfully naturalised

***Carrichtera annua* (L.) DC. (Ward's weed)**

Specimen examined: 'Lomatia Vale', Clarks Road, Lower Longley (TSR), 3.xi.1985, *A.M. Gray s.n.* (HO 94051!).

Notes: This erect annual herb is known in Tasmania from a single specimen collected from a garden at

Longley. Notes accompanying the specimen state that only a single plant was found and that it was probably introduced with fowl feed. Based on this information it is difficult to justify any degree of naturalised status for the species in Tasmania.

Extra Tasmanian distribution: WA, NT, SA, NSW, Vic.

Status: Not naturalised

***Eruca sativa* Mill. (purple-vein rocket)**

Specimens examined: Tasmania (cult.) (TSE), 5.xii.1971, *R.J. Hnatiuk s.n.* (CANB 246483 [n.v.]); Primrose Place, Sandy Bay (cult.) (TSE), 11.xii.1981, *W.F. Walker s.n.* (HO 46453!); University of Tasmania, Hobart (cult.) (TSE), xii.1996, *R. Wiltshire s.n.* (HO 443113!); Darling Parade, Mt Stuart (TSE), 21.iv.2005, *M.F. Duretto 1866* (HO!).

Notes: This edible annual herb is known in Tasmania from four collections with notes indicating that they were either self-sown in gardens or deliberately cultivated. Based on this information it is difficult to justify any level of naturalised status for the species in Tasmania.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Not naturalised

***Lepidium heterophyllum* Benth (downy peppergrass)**

Specimens examined: Cressy (TNS), xii.1973, *D.I. Morris s.n.* (HO 29388!); Cressy Research Farm (TNS), *J. Somerville s.n.* (HO 15715!).

Notes: This perennial herb is known in Tasmania from two specimens collected from Cressy in the State's central north. One specimen's collecting information states that it was growing on the bank of an irrigation ditch but gives no indication of the population size or area covered by the species. The other has no information regarding its status at the collection site. Curtis and Morris (1975) described it as "occasional in waste places". In the absence of further collections, and the possibility that both collections are from the one highly anthropogenic location, there is little support to justify any degree of naturalised status for it in Tasmania.

Extra Tasmanian distribution: None

Status: Not naturalised

***Lunaria annua* L. (honesty)**

Selected specimens examined (6 of 15): Port Arthur (TSE), 1892, *J. Bufton A* (MEL2233709 [n.v.]); Fern Tree (TSE), 13.i.1983, *D.I. Morris 8306* (HO!); Longford (TNM), 13.x.1994, *A.*



Figure 3. *Brassica oleracea* is an example of a species that is doubtfully naturalised in Tasmania. Although several specimens exist, and from disjunct locations, there are no notes to give any context as to the species' status.

Bishop s.n. (HO 323066!); Dover (TSR), 29.x.2002, *T. Rudman s.n.* (HO 520018!); Scottsdale tip off Bridport Road, c. 200 m N of Jetsons Road junction (BEL), 11.i.2005, *M.L. Baker 1350* (HO!); Mt Wellington (TSE), 25.ix.2006, *M. Wapstra 22* (HO!).

Notes: This occasionally cultivated biennial herb is widespread in Tasmania and is common especially in and around the greater Hobart region. Naturalised populations have been recorded growing in a range of habitats, including roadside verges, shorelines, stream banks and pasture.

Extra Tasmanian distribution: SA, NSW, Vic.

Status: Naturalised

***Nasturtium microphyllum* Boenn. ex Rchb. (one-row watercress)**

Selected specimens examined (6 of 13): Near Cataract [Gorge], Launceston (TNM), xi.1865, [collector unknown] (NSW 137706 [n.v.]); At the base of Mount Field East, and at Jones River (TSR), i.1867, *F. Mueller s.n.* (MEL0093363 [n.v.]); Mole Creek (TNS), xii.1908, L. Rodway 25a (HO!); Apsley (TSE), 20.xii.1978, *D.I. Morris s.n.* (HO 30970!); Ocean Beach. 5 km W of Strahan (TWE), 7.ii.1981, *A.E. Orchard 5368* (HO!); South Road coastal block, 100 m from coast, King Island (KIN), 1.xii.2009, *M. Batey 99* and *G. Batey* (HO!).

Notes: This semi-aquatic perennial herb is known in Tasmania from several collections spanning a long period of time and with a wide distribution. Recent examination of material held in the Tasmanian Herbarium has identified several specimens of *N. microphyllum* from material previously identified as *Nasturtium officinale* W.T.Aiton. It is possible that this it is more widespread in the State as it is likely to have been overlooked due to its resemblance to the widespread and common *N. officinale*. To distinguish the two species, fertile material with mature fruits is required. Curtis and Morris (1975) described its habitat as being the same as where *N. officinale* is found; that is, streams and ditches in moving water.

Extra Tasmanian distribution: SA, Qld, NSW, Vic.

Status: Naturalised

***Raphanus maritimus* Sm. (sea radish)**

Specimens examined: Bridgewater (TSE), 9.xi.1942, *H.D. Gordon s.n.* (HO 29355!); Wynyard, township (TNS), 18.i.1964, *A. Colebrook 8816* (NSW 641428 [n.v.]).

Notes: This annual herb is known in Tasmania from two disjunct locations. Information on both suggests they were not from cultivated plants. The Bridgewater collection is from an “embankment”, whereas the

Wynyard collection is annotated as being “not cultivated”. It has not been recorded in Tasmania for more than 50 years and, without details of the habitat or populations at these sites, there is insufficient evidence to suggest that it is naturalised in Tasmania.

Extra Tasmanian distribution: Vic.

Status: Doubtfully naturalised

***Rorippa sylvestris* (L.) Besser (creeping yellowcress)**

Specimens examined: Cradoc Hill Road, near Cradoc (TSR), 4.xii.2000, *D.I. Morris 86721* (HO!); Valleyfield, New Norfolk (TSE), 12.i.2001, *A.M. Buchanan 15825* (HO!); Cradoc Hill Road, Liliam farm on W side of road (TSR), 19.i.2004, *A.M. Buchanan 16093* (HO!); Mountain River Road, ~1.5km from Grove intersection, Mountain River (TSR), 19.i.2004, *M.L. Baker 402* (HO!); Valleyfield, New Norfolk (TSE), 23.i.2004, *M.L. Baker 401* (HO!).

Notes: This perennial herb has a distribution that is localised and restricted in southern Tasmania. It is well-established and a troublesome weed at several sites including Cradoc Hill Road, where it was recorded in a weed-infested paddock after it was accidentally introduced via imported *Lilium* bulbs. In April 2018 many plants were persisting at this site. It has also been recorded from a blackcurrant crop at New Norfolk. The species does not reproduce by seed and reproduction and dispersal is via transport of rhizomes. Based on the above evidence, *R. sylvestris* appears to be sparingly naturalised in Tasmania.

Extra Tasmanian distribution: SA, Vic.

Status: Sparingly naturalised

***Thlaspi arvense* L. (penny cress)**

Specimens examined: Togari (KIN), 16.xi.1976, *J. Lees s.n.* (HO 576402!); ‘Leamington’, Pawtella (TSE), 14.x.1991, *S. Geard s.n.* (HO 142638!); ‘Leamington’, Pawtella (TSE), 11.x.1991, *S. Geard s.n.* (HO 142639!).

Notes: This erect annual herb is known in Tasmania from two widespread locations: Togari in the State’s northwest, and Pawtella in the south. The Pawtella specimen was from a rape crop, but there is no indication of the number of plants or its history or status at the site. The collection from Togari is devoid of contextual notes. In the absence of information, there is doubt regarding its naturalised status in Tasmania.

Extra Tasmanian distribution: NSW, Vic. (previously naturalised)

Status: Doubtfully naturalised

CALLITRICHACEAE

Callitriche brutia Petagna subsp. *brutia* (stalked waterstarwort)

Specimen examined: Houfes Road, King Island (KIN), 30.x.1998, A. Woolley s.n. (HO 446766!).

Notes: This aquatic herb is known in Tasmania from a single specimen that was collected from a roadside drain on King Island. There is insufficient information to suggest that it has become naturalised, but follow-up surveys at the site are warranted to check its persistence.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Doubtfully naturalised

CAMPANULACEAE

Campanula rapunculoides L. (creeping bellflower)

Specimens examined: Tasmania (cult.), 27.xii.1948, [collector unknown] (HO 53435!); Tasmania (cult.), 29.xii.1949, [collector unknown] (HO 8173!); Tasmania, 3.xii.1954, [collector unknown] (HO 8174!); New Town (TSE), 5.ix.1989, D.I. Morris 86399 (HO!); Ruth Drive, Lenah Valley (TSE), 20.ii.2012, M. Wapstra 1345 (HO!).

Notes: This cultivated perennial herb is known in Tasmania from five collections. The three earliest are from unknown locations: two are noted as being cultivated and the third as a “garden escape”. The notes associated with these specimens are scant. The recent collections were recorded from the base of a retaining wall in a residential garden and from a railway line at the former New Town railway station. Recent surveys in the latter area failed to re-locate it (M. Wapstra pers. obs.). Curtis (1963) stated that the species is “persisting on roadsides and in waste places near gardens”. There is insufficient information to suggest that this species has become naturalised in Tasmania.

Extra Tasmanian distribution: Qld (formally naturalised), NSW (Sparingly naturalised)

Status: Doubtfully naturalised

Lobelia erinus L. (bedding lobelia)

Selected specimens examined (5 of 7): Mt Stuart Road, Hobart (TSE), 5.iv.2006, M.F. Duretto 2124 (HO!); Trevallyn Nature Recreation Area (TNM), 10.xii.2010, R. Skabo s.n. (HO 566884!); East of Ansons Bay Road (BEL), 20.xi.2011, R. Skabo s.n. (HO 563964!); Mount Nelson, E side of Rialannah Road (TSE), 17.iv.2012, M. Wapstra 1357 (HO!); Channel Highway [Middleton] (TSE), 4.iii.2013, M. Wapstra 1549 (HO!).

Notes: This sprawling perennial garden plant, despite being represented only by relatively recent collections from the 2000s, is widespread in Tasmania. It is most often recorded as a few or single plants. However, a population from the Channel Highway was noted as being locally abundant, with 100s to 1000s of plants spread over a hundred metres or so of roadside table drain. One population, recorded from a sandstone wall that divides Mount Stuart Road, is long-persistent, flowers each year and seems to spread further each growing season (M. Wapstra pers. obs.). Plants have been recorded growing in a number of different habitats including roadsides, banks of suburban rivulets and grassy woodland. While there are several collections from widespread locations and different habitats, the species is still considered only sparingly naturalised due to its usually localised occurrence. However, the propensity for the species to spread is noted and this may be an example of a species that will shift category in a short time frame.

Extra Tasmanian distribution: SA, NSW, Vic.

Status: Sparingly naturalised

CAPRIFOLIACEAE

Lonicera periclymenum L. (European honeysuckle)

Specimens examined: Old town of Guildford (TCH), 2.ii.2014, M. Wapstra 1813 (HO!); Camp Creek, Currie, King Island (KIN), 25.ii.2009, M.L. Baker 2054 (HO!); Zeehan, West Coast (TWE), 9.xii.1954, W.M. Curtis s.n. (HO 52083!).

Notes: This vigorous, evergreen climber is known in Tasmania from three widely separated locations. The specimens come from an old homestead site at Guildford, a roadside at Zeehan and a weedy creek bank on King Island. It is possible that there are more populations and that it may have been overlooked for the widespread and naturalised *L. japonica* Thunb.

Extra Tasmanian distribution: None

Status: Sparingly naturalised

Viburnum tinus L. (laurustinus)

Selected specimens examined (6 of 11): Whites Mill Road, Lilydale (BEL), 11.ix.1983, A.M. Buchanan 1206 (HO!); Long Island (FLI), 1.xii.1986, S. Harris s.n. (HO 104804!); Cataract Gorge, Launceston. Cataract walk between Kings Bridge and First Basin (N side of river) (TNM), 14.x.2005, M.L. Baker 1692 (HO!); Mount Wellington, Pipeline Track, above track (TSE),

16.viii.2009, *M. Wapstra 916* (HO!); Prospect, bushland reserve between Country Club Avenue and Las Vegas Drive (TNM), 16.x.2013, *M. Wapstra 1456* (HO!); Cataract Gorge, track from Kings Bridge to Gorge (TNM), 7.xi.2017, *M.L. Baker 3383* (HO!).

Notes: This commonly cultivated ornamental shrub is known in Tasmania from several collections mainly from single plants persisting at the sites of abandoned gardens. The most recent record notes that several juvenile plants were encountered and were probably the result of dumped garden refuse. Whether these plants have persisted at this site is unknown. The species produces copious amounts of fleshy fruit that are consumed and dispersed by birds (Karlsson 2005). A recently-observed locally naturalised population at Cataract Gorge, Launceston, consisted of many plants of varying size and age. Cultivated plants of *V. tinus* at an abandoned homestead in bushland in Glenorchy were observed to be heavily grazed by ground-dwelling marsupials, indicating that it is palatable to wildlife (*M. Baker pers. obs.*). It is thought that browsing of seedlings limits the opportunity of this species to naturalise in Tasmania.

Extra Tasmanian distribution: SA, ACT, Vic.

Status: Sparingly naturalised

CARYOPHYLLACEAE

Silene conica L. (striated catchfly)

Specimen examined: King Island, Bass Strait (KIN), 20.ii.1931, *A.E. Scott s.n.* (AD 98664081 [n.v]).

Notes: This annual herb is known in Tasmania from a single specimen collected from King Island more than 85 years ago. With no accompanying notes on habitat or population details, there is little evidence to suggest it is naturalised in Tasmania.

Extra Tasmanian distribution: Vic.

Status: Not naturalised

Silene dichotoma Ehrh. (forked catchfly)

Specimens examined: Tasmania, *R.A. Black s.n.* (HO 8561!); Sandy Bay (TSE), iv.1913, *L. Rodway 65c* (HO!); Queens Domain, Hobart, Davies Avenue (near Hobart Aquatic Centre) (TSE), 5.x.2009, *M.L. Baker 2102* (HO!); Cressy Beach, Middle headland (TSE), 26.x.2009, *M. Wapstra 982* (HO!); Royal Tasmanian Botanical Gardens, grassland area at N tip of gardens (TSE), 26.xi.2010, *M.L. Baker 2350* (HO!).

Notes: This annual or biennial herb is known in Tasmania from a small number of small but established

populations. Two of these occur on the Queens Domain in Hobart whilst the third is at Cressy Beach on the State's east coast. This species is established in Tasmania but the small scale and number of sites suggest it should be considered only sparingly naturalised.

Extra Tasmanian distribution: Vic.

Status: Sparingly naturalised

Silene colorata Poir. (= *Silene longicaulis* auct. non Pourr. ex Lag. sensu Buchanan (1995)) (pink catchfly)

Specimens examined: South Arm, 12.ii.1899, *F.A. Rodway 658* (NSW 676460!); South Arm (all TSE), xii.1905, *L. Rodway 65A* (HO!).

Notes: This annual herb is known in Tasmania from only two specimens collected from South Arm in the State's southeast. The name *S. longicaulis* was, until recently, misapplied to a specimen of *S. colorata* and it was this specimen that led to the species being included in the 1995 edition of the *Tasmanian Vascular Plant Census* (Buchanan 1995). Due to the lack of notes accompanying the collections it is difficult to determine its status in Tasmania. Having not been collected or recorded in the State for more than 110 years strongly suggests it is no longer present. For a detailed discussion of this species in Tasmania see Baker (2016).

Extra Tasmanian distribution: None

Status: Not naturalised

Stellaria graminea L. (lesser stitchwort)

Specimens examined: Tyenna (TSR), 15.xi.1903, *L. Rodway s.n.* (HO 8634!); Sea Elephant River, King Island (KIN), 9.i.1979, *D.I. Morris 7964* (HO!).

Notes: This perennial herb is known in Tasmania from two disjunct locations. One specimen was collected more than 100 years ago from Tyenna and the other was collected nearly 40 years ago from King Island. Whilst there is no information indicating the species' status, given the two geographically and temporally separated records, it is possible it is more widespread but perhaps overlooked. Curtis (1956) stated that it is "occasional in shaded places and amongst bracken". Given the lack of recent collections and informative collecting information it is difficult to apply a naturalised status to this species with any certainty.

Extra Tasmanian distribution: NSW, Vic. (previously naturalised)

Status: Doubtfully naturalised

***Vaccaria hispanica* (Mill.) Rauschert (cow soapwort)**

Specimen examined: Hobart (TSE), (no other collection information recorded. Annotated in Leonard Rodway's handwriting), (HO 8647!).

Notes: This annual herb is known in Tasmania from a single, poorly-annotated collection thought to have been collected by Leonard Rodway, although Rodway (1903) does not mention it. Curtis (1956) described its distribution and habitat (as *V. segetalis*) as "occasional in cultivated ground". However, the basis for this observation is not known. From this scant information it is difficult to assign a naturalised status with any certainty.

Extra Tasmanian distribution: WA, NT, SA, Qld, NSW, Vic.

Status: Not naturalised

CHENOPODIACEAE

***Bassia scoparia* (L.) A.J.Scott (kochia)**

Specimens examined: Quamby View, near Deloraine, Midlands (TNS), 22.ii.1995, *A. Allwright s.n.* (HO 411060!); Quamby View near Deloraine, Midlands (TNS), 8.iv.1997, *D. Green s.n.* (HO 12302! & HO 320884!); Quamby View, near Deloraine, Midlands (TNS), 08.iv.1997, *A. Allwright s.n.* (MEL0258971 [n.v.]); Winspears Road, Ambleside, East Devonport (FLI), i.1998, *A. Loane s.n.* (HO 324601!).

Notes: This annual herb is known in Tasmania from two locations. The latest record is devoid of useful collecting notes that give any indication of its status, although the location is predominantly rural land. All other records are from a carrot crop at the one site but collected over two different years, indicating some persistence at the site or a possible reintroduction as a contaminant of crop seed. This potentially troublesome crop weed has not been collected since and it is unknown if it has persisted at the sites.

Extra Tasmanian distribution: WA, SA

Status: Doubtfully naturalised

***Chenopodium foliosum* (Moench) Asch. (= *Chenopodium capitatum* auct. non (L.) Ambrosi sensu Buchanan (2009)) (leafy goosefoot)**

Specimens examined: New Town, Hobart, 10 Senator Street (TSE), 23.ii.1982, *J.E.S. Townrow s.n.* (HO 115888!); Lenah Valley, S side [of Augusta Road] (TSE), 17.ii.2008, *M. Wapstra 466* (HO!);

Augusta Road, Lenah Valley, Hobart (TSE), iii.2010, *M. Wapstra 1100* (HO!).

Notes: The two recent collections of this annual herb are from a single plant, noted as growing in a suburban drain. The plant persisted into 2009 and 2010, despite being virtually uprooted in 2008 (Wapstra 2008 as *C. capitatum*). It was eliminated by DPIPWE weed management officers in 2010 and has not reappeared since (M. Wapstra pers. obs.). The collection from Senator Street in the same suburb in 1982 was growing in a garden. Searches in the area during 2008-2010 failed to detect any plants in the vicinity. Given this information it is reasonable to consider that this species was never truly naturalised in Tasmania.

Extra Tasmanian distribution: None

Status: Not naturalised

CISTACEAE

***Cistus inflatus* Pourr. ex Demoly (rock rose)**

Specimens examined: Hadspen near bridge over South Esk River (TNM), 7.iii.1998, *A.M. Buchanan 15138* (HO!); Hadspen (TNM), 19.iii.1998, *A.M. Buchanan 15160* (HO!); Hadspen, side of road to disused jetty on South Esk River (TNM), 1.xii.2004, *M. Baker 1141* (HO!).

Notes: This ornamental shrub is known only from collections from Hadspen in the State's north. It is represented by a single localised population that has been persistent at the site for almost 20 years since it was first recorded. It is presumed that it was once planted there as an ornamental. However, it is now common and a dominant component of the vegetation along both sides of a 200 m section of track verge.

Extra Tasmanian distribution: SA, Vic.

Status: Sparingly naturalised

CLUSIACEAE

***Hypericum humifusum* L. (creeping St John's wort)**

Specimen examined: Don River, Devonport (KIN), 9.i.1940, *A.M. Olsen s.n.* (HO 411728!).

Notes: This prostrate perennial herb is known in Tasmania from a single specimen collected more than 75 years ago and with scant notes. Baker (2005) regarded it as a taxon of uncertain status and concluded that surveys were required to determine its presence in Tasmania.

Extra Tasmanian distribution: Vic.

Status: Not naturalised

***Hypericum pulchrum* L. (slender St John's wort)**

Specimens examined: Underwood, S slope of Browns Hill (BEL), 26.xii.1985, *A.M. Buchanan 7808* (HO!); Underwood, Ryans Road (BEL), 12.ii.2009, *M.L. Baker 1954* (HO!).

Notes: This of perennial herb is known in Tasmania from one small and highly localised population in the northeast of the State where it grows on a grassy roadside verge. It has persisted at the site for more than 30 years.

Extra Tasmanian distribution: None

Status: Sparingly naturalised

CORNACEAE

***Griselinia littoralis* (Raoul) Raoul (New Zealand broadleaf)**

Specimens examined: Strahan, W side of Customs House (TWE), 1.xi.2005, *T. Rudman s.n.* (HO 535554!); Strahan, remnant forest behind Post Office (TWE), 21.xi.2005, *M.L. Baker 1670* (HO!); Strahan, Hogarth Falls Peoples Park (TWE), 21.xi.2005, *M.L. Baker 1666* (HO!); Royal Tasmanian Botanical Gardens, Hobart (cult.) (TSE), 13.i.2006, *M.L. Baker 1695* (HO!).

Notes: This evergreen shrub/small tree has a localised distribution in Tasmania, having only been collected from Strahan on the State's west coast. It occurs in disturbed sites throughout the town and on the edges of nearby remnant native forest. It is also cultivated in the area and this is the likely source of introduction. For a discussion of its distribution and habitat in Tasmania see Baker (2007).

Extra Tasmanian distribution: None

Status: Sparingly naturalised

CRASSULACEAE

***Aeonium haworthii* Salm-Dyck ex Webb & Berthel. (pinwheel)**

Specimens examined: Tasman Island (TSE), 29.ix.2007, *P.A. Tyson 582* (HO!); Bellerive, coast side of Victoria Esplanade, SE of Abbott Street (TSE) 20.vi.2012, *D.E. Albrecht 14139* (HO!).

Notes: While there are only two formal collections of this shrubby succulent ornamental recorded from Tasmania, it is recognised that it is more widespread and merely poorly-collected in the State (as is the case

for many succulent taxa due to technicalities in their preservation and curation). Notes on the Tasman Island collection indicate that it may have been successfully eliminated but this needs to be confirmed. The species is well-established at some coastal locations in southeast Tasmania, often forming large populations on steep, inaccessible cliffs.

Extra Tasmanian distribution: WA, SA, Vic.

Status: Naturalised

***Crassula muscosa* L. var. *muscosa* (clubmoss crassula)**

Specimens examined: Midway Point, Tasman Highway (TSE), 31.iii.2006, *M.L. Baker 1706* (HO!); Second Bluff, Howrah (TSE), 12.xi.2009, *M. Wapstra 754* (HO!).

Notes: This low-growing succulent herb is represented by only two Tasmanian collections. However, it is recognised that it is more widespread but poorly-collected in the State. It was first recorded at Midway Point in the State's southeast, where it forms dense mats on a small section of roadside verge. At this site, it has presumably spread from deliberate ornamental plantings. The most recent record consists of a population growing in remnant native vegetation on a steep cliff near Bellerive Beach. Additional sites are known on North Bruny Island, where it is very well-established on sandstone cliffs, and near Cambridge on a grassy roadside batter.

Extra Tasmanian distribution: Vic.

Status: Sparingly naturalised

***Crassula natans* Thunb. var. *minus* (Eckl. & Zeyh.) G.D.Rowley (floating stonecrop)**

Selected specimens examined (5 of 8): Flinders Island, Long Point (FLI), 17.viii.1975, *J.S. Whinray s.n.* (CANB 533240.1 [n.v.]); Nook Swamps, King Island (KIN), 19.xi.2007, *M. Wapstra 316* (HO!); Curries River Reservoir. Edge of water, W of picnic huts (BEL), 14.x.2008, *M. Wapstra 538* (HO!); Dartys Corner, S of Temma (KIN), 31.x.2008, *M. Wapstra 566* (HO!); Epping Forest, edge of car park of roadhouse, N end (TNM), 1.x.2014, *M. Wapstra 2030* (HO!).

Notes: This semi-aquatic annual appears to be a relatively recent arrival in Tasmania and is now widespread in mainly near-coastal sites. It is most often associated with ephemerally wet sites, usually in quite disturbed situations. Wapstra (2012) concluded that it was most likely "alien" based on the criteria of Bean (2007).

Extra Tasmanian distribution: WA, SA, Vic.

Status: Naturalised

***Crassula tetragona* L. subsp. *robusta* (Toelken) (Toelken miniature pine tree)**

Specimen examined: Mt Nelson, edge of University Reserve (TSE), 20.i.2008, *A.M. Buchanan 16846* (HO!).

Notes: This succulent ornamental is known in Tasmania from a single collection from a single persistent population that has presumably escaped from a nearby garden where it has been deliberately planted. It is commonly planted in gardens and occurs on several roadside banks and verges, where it has persisted and slowly spread. It has been seen at numerous other sites (e.g. Bruny Island, Granton and St Helens). At present, it is considered sparingly naturalised due to the paucity of formal collections, but this is likely to change as its distribution is better understood.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Sparingly naturalised

CUCURBITACEAE

***Ecballium elaterium* (L.) A.Rich. (squirting cucumber)**

Selected specimens examined (4 of 6): At football pitch crossroads, on W side of soccer field, Queens Domain (TSE), 17.iv.1984, *D.I. Morris 8419* (HO!); Between Tasman Bridge and Government House, Hobart (TSE), 10.viii.1999, *A.M. Buchanan 15466* (HO!); Hobart, between Tasman Highway and Intercity Cycleway in front of Government House (TSE), 6.ii.2014, *M.L. Baker 2856 and N.Gill* (HO!); Hobart, between Tasman Highway and Intercity Cycleway in front of Government House (TSE), 23.iii.2017, *M.L. Baker 3249* (HO!).

Notes: This prostrate perennial herb is locally established at The Queens Domain area in Hobart. It has been long-persistent at one site between the Tasman Bridge and the Cenotaph on a grassy highway verge, with only a single plant seen in 2017 after successful control measures reduced the number of plants in preceding years. The species has not been recorded at the upper Domain site since its initial collection and is now presumed to be absent there.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Sparingly naturalised

CUSCUTACEAE

***Cuscuta suaveolens* Ser. (fringed dodder)**

Specimen examined: Paddock 6, Forthside Vegetable Research Station (TNS), 23.iv.1999, *Botanical Resources Australia s.n.* (HO 444804!).

Notes: This parasitic herb is known in Tasmania from a single collection that was growing with weeds in a red clover research plot in the northwest of the State. It was eradicated and has not been recorded since (DPIPWE 2014). See Figure 4.

Extra Tasmanian distribution: WA, NSW, Vic.

Status: Previously naturalised

ERICACEAE

***Arbutus unedo* L. (strawberry tree)**

Selected specimens examined (5 of 6): "Lowana", King River Flats, SE of Strahan (TWE), 20.ii.1978, *R.C. Halton s.n.* (HO 540325!); Fern Tree, Hobart (cult.) (TSE), 11.iv.1988, *D.I. Morris 86323* (HO!); Legana, E side of Jetty Road (TNM), 14.vi.2007, *G. Stewart s.n.* (HO 545714!); Legana, Jetty Road (TNM), 29.xi.2011, *M.L. Baker 2614* (HO!); Rosebery, junction Lyell Highway and Hollywood Street (TWE), 24.v.2013, *M. Wapstra 1640* (HO!); Reid Street Reserve, Ulverstone (TNS), v.2014, *S. Stallbaum s.n.* (HO 579892!).

Notes: This ornamental tree is commonly cultivated in Tasmania but it is becoming naturalised. The population at Legana is comprised of several plants, naturalised in *Melaleuca ericifolia-Phragmites australis* wetland, and is thought to have spread from a mature tree in a nearby garden.

Extra Tasmanian distribution: SA, Vic.

Status: Sparingly naturalised

EUPHORBIACEAE

***Euphorbia stricta* L. (upright spurge)**

Specimen examined: Bridport, Brid River walking track (FLI), 13.xi.2011, *M.L. Baker 2621* (HO!).

Notes: This annual herb is known in Tasmania from a single, localised population of mature plants and seedlings covering an area of 10 x 10 m on a disturbed river bank in Bridport on the State's north coast. The plants grow with various exotic herbs and grasses. The population was present when re-visited in November 2017 (M.L. Baker pers. obs.).

Extra Tasmanian distribution: None

Status: Sparingly naturalised



Figure 4. The parasitic herb *Cuscuta suaveolens* was recorded growing on weeds in a trial crop in Tasmania. Its discovery prompted a successful eradication program. Whilst it did not have the opportunity to form a self sustaining population, the potentially serious impacts of this species warrant it being listed as previously naturalised in Tasmania.

FABACEAE

Hedysarum coronarium L. (French honeysuckle)

Selected specimens examined (3 of 6): Hobart (cult.) (TSE), xii.1902, *L. Rodway 178* (HO!); Hobart (cult.)(TSE), i.1910, *L. Rodway 184* (HO!); Botanical Gardens, Hobart (cult.)(TSE), 24.xii.1946, *W.M. Curtis s.n.* (HO 10716!).

Notes: This short-lived perennial is known in Tasmania from several pre-1950 collections, all from cultivated specimens lacking informative notes. Curtis (1956) described its distribution and habitat as “introduced and persisting near centres of cultivation”. From this scant information it is difficult to assign a naturalised status with any certainty. See Figure 5.

Extra Tasmanian distribution: Qld

Status: Not naturalised

Laburnum anagyroides Medik. (golden chain tree)

Specimens examined: Roadside, Neika (TSE), 12.ii.1997, *A.M. Buchanan 14409* (HO!); Cataract Gorge, Launceston (TNM), 14.x.2005, *M.L. Baker 1689* (HO!).

Notes: This small, deciduous ornamental tree is known in Tasmania from two disjunct locations. The most recent was from a population of naturalised plants growing on the sides of a steep dolerite gorge at Launceston. The species is occasionally seen growing on roadsides in southeast Tasmania (e.g. Tarooona; below Queens Domain, Hobart), suggesting it is more widely naturalised than herbarium records indicate (M. Wapstra, pers. obs.).

Extra Tasmanian distribution: None

Status: Sparingly naturalised

Lathyrus nissolia L. (grass vetchling)

Specimens examined: D’Entrecasteaux Channel (TSE), ii.1904, *L. Rodway 176* (HO!); Gordon (TSE), 9.x.1924, *S.B. Barker s.n.* (MEL2298792A [n.v.]); Tarooona Pathway off Oakleigh Avenue (TSE), 17.xi.2005, *D. Harris s.n.* (HO 539383!); Tarooona, grass strip between Oakleigh Avenue and Cartwright Creek (TSE), 17.xi.2005, *M.L. Baker 1652* (HO!).

Notes: Despite being known only from a small number of discrete sites in southeast Tasmania, this annual herb has been present in Tasmania since at least 1904. The most recent collection was from a well-established population in an exotic grassland at Tarooona in the south of the State. Curtis (1956) described its

distribution and habitat as “rare, in grassy places”.

Extra Tasmanian distribution: Vic.

Status: Sparingly naturalised

Lotus angustissimus L. (narrowleaf trefoil)

Specimens examined: Cressy House, Cressy (TNM), 17.iv.1985, *R.S. Smith s.n.* (HO 94684!); 5 km S of Wilmot on Cradle Mountain Rd (TNS), 13.iii.1995, *P.C. Jobson 3465* (NSW [n.v.]); Tonganah, site of former clay mine (BEL), 9.i.2002, *J. Findlay s.n.* (HO 518972!); Swansea, Rockcliffe property (TSE), 1.ii.2002, *A.M. Buchanan 15918* (HO!); Murphys Flat, Granton (TSE), 25.iii.2010, *M.L. Baker 2229* (HO!).

Notes: This annual sprawling herb is known in Tasmania from a small number of widespread records. It grows in range of situations, including croplands and wetlands. It is expected to be more common and widespread and has most likely been overlooked due to its close resemblance to other naturalised species of *Lotus* that occur in Tasmania.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Sparingly naturalised

Lupinus angustifolius L. (narrowleaf lupin)

Specimens examined: Eaglehawk Neck (TSE), 24.i.1928, *J.B. Cleland s.n.* (AD 966080625 [n.v.]); Sorell (TSE), 24.xi.1976, *D. Munro and N.Walker s.n.* (NSW 456562!); Bass Highway near Deloraine (TNM), 20.ix.2007, *M. Wapstra 226* (HO!); George Town/Bell Bay Road roundabout (FLI), 15.x.2008, *M. Wapstra 532* (HO!).

Notes: This annual herb is known in Tasmania from a small number of widespread collections. Curtis (1956) described its distribution and habitat as “cultivated in orchards as a green manure and found occasionally as an escape”. However, no specimens were available to her at the time. More recently, it has been recorded as being prevalent on the verge of the Bass Highway (e.g. HO 547663) but is now absent there (M. Wapstra, pers. obs.). It appears to arise on road verges but not persist; for example, a single plant was collected near Epping Forest in 2004 (M. Wapstra, pers. obs.). It is cultivated in Tasmania as a grain legume for animal and human consumption (Knox *et al.* 2006).

Extra Tasmanian distribution: WA, NSW, Vic.

Status: Sparingly naturalised

Medicago arborea L. (tree medick)

Selected specimens examined (5 of 6): Killiecrankie Bay, Flinders Island (FLI), 28.vi.1966, *J.S. Whinray 37* (MEL1021317



Figure 5. *Hedysarum coronarium* is considered to be not naturalised in Tasmania as it appears that it is only known from cultivated specimens.

[*n.v.*]; Currie, King Island (KIN), 31.v.1984, *K. Harris s.n.* (HO 84377!); Lighthouse Street, King Island (KIN), 19.x.2008, *M. Batey s.n.* (HO 551270!); Currie, lighthouse street park (KIN), 24.ii.2009, *M.L. Baker 2018* (HO!); Tranmere foreshore (TSE), 24.x.2010, *M. Wapstra 1148* (HO!).

Notes: This small ornamental shrub has a disjunct distribution in Tasmania. It is restricted to coastal areas on Flinders Island and King Island, and at Tranmere on the shore of the River Derwent. All populations grow in the vicinity of gardens and can be found spreading into adjacent pasture, bushland and grasslands. The King Island populations are particularly well-established, albeit localised, with mature plants and seedlings present. This species is established in Tasmania but the small scale and number of sites suggest it should be considered only sparingly naturalised.

Extra Tasmanian distribution: Qld (doubtfully naturalised)

Status: Sparingly naturalised

***Medicago sativa* L. subsp. \times *varia* (Martyn) Arcang. (= *Medicago falcata* auct. non L. sensu Curtis (1956))**

Specimens examined: Bridgewater (TSE), 5.v.1945, *W.M. Curtis s.n.* (HO 42279!); Macquarie Plains (TSE), 16.ii.1969, *B. Davidson s.n.* (HO 536018!); Bridgewater, old railway yard at NW end of Bridgewater Bridge (TSE) 3.iv.2017, *M.L. Baker 3253* (HO!).

Notes: This hybrid perennial herb (*M. sativa* \times *M. falcata*) is known in Tasmania from three collections. Recent reappraisal of two of these (previously identified as *M. falcata*) and of newly collected material shows that the plants are consistent with taxonomic delimitations of the hybrid taxon *M. sativa* subsp. \times *varia* as proposed by Small (2011). No notes accompany the two earlier collections, but the most recent collection from a localised population at Bridgewater possibly represents the same site as one of the early records. Plants from this population exhibited a range of corolla colours, including white, yellow and pale to deep purple, while the plants were mostly prostrate to semi-prostrate in habit and had pods with 1.5 to 2 coils. Curtis (1956) stated that it is "found occasionally with *M. sativa*". *Medicago sativa* is common and widely naturalised in Tasmania. Whilst there is no evidence to suggest that *M. falcata* is naturalised in Tasmania, the hybrid taxon is locally naturalised at one location.

Extra Tasmanian distribution: None

Status: Sparingly naturalised

***Onobrychis viciifolia* Scop. (sainfoin)**

Specimen examined: A little S of Melton Mowbray (TSE), 9.xi.1942, *H.D. Gordon s.n.* (HO 42235! & HO 11245!).

Notes: This perennial herb is known in Tasmania from a single specimen, collected more than 70 years ago, growing between a road and railway track in the Tasmanian Midlands agricultural area. No notes accompany the specimen to indicate its status at the collection site. Curtis (1956) described its habitat as "occasional near areas of cultivation". This statement is presumably based on this single record. The species may have been intentionally introduced as it is used as a fodder plant.

Extra Tasmanian distribution: NSW

Status: Not naturalised

***Ornithopus sativus* Brot. (French serradella)**

Specimens examined: Waterhouse Road beyond Bridport (FLI), 24.x.1979, *M.P. Cameron s.n.* (HO 38953!); Mt Pleasant [Laboratories](TSE), 14.xii.1965, *G.M. Bendall s.n.* (HO 535746!); Low Head, area between Five Mile Bluff and Beechford (FLI), 29.xi.2011, *J. Davies s.n.* (HO 565095!).

Notes: This annual herb is known in Tasmania from two specimens from the northeast coast collected several decades apart, suggesting that it has possibly persisted in the region. The most recent collection is from agricultural land where it was locally common in a 500 \times 200 m area. The 1979 collection was from a site where it had persisted from a pasture trial. It is occasionally used as a pasture species for its high nutritive value and ability to regenerate from seed.

Extra Tasmanian distribution: WA, NSW, Vic.

Status: Sparingly naturalised

***Securigera varia* (L.) Lassen (crown vetch)**

Selected specimens examined (5 of 17): Near Botanical Gardens, [Hobart] (cult.), xi.1906, *L. Rodway s.n.* (HO 12313!); Railway Station, Botanic Gardens, [Hobart], i.1949, *L.A.S. Johnson s.n.* (NSW 642784 [*n.v.*]); Lutana, Hobart (cult.), 2.i.1985, *J.B. Davies s.n.* (HO 89327!); Domain Highway, adjacent to Royal Tasmanian Botanical Gardens, Hobart, 17.xii.2008, *M. Wapstra 631* (HO!); Hobart. Queens Domain - strip of remnant bushland between bicycle track and Lower Domain Road (all TSE), 14.x.2015, *M.L. Baker 3007* and *A. Muyt* (HO!).

Notes: This perennial herb has a localised distribution in Tasmania centred around the Royal Tasmanian Botanical Gardens, Hobart, where it is locally naturalised on railway and roadside verges, and in remnant

woodland. It has been recorded as a cultivated plant at the Gardens and at several other locations in and around Hobart.

Extra Tasmanian distribution: NSW, ACT, Vic.

Status: Naturalised

***Trifolium uniflorum* L. (oneflower clover)**

Specimen examined: Currie Airport, King Island (KIN), 17.xi.1976, *M. Allen s.n.* (HO 28028!).

Notes: This mat-forming perennial is known in Tasmania from a single collection from roadside gravel on King Island. The lack of collecting details and additional records since its collection more than 40 years ago suggest that it never became naturalised. Further searching in the vicinity of the collection is warranted.

Extra Tasmanian distribution: None

Status: Not naturalised

FUMARIACEAE

***Fumaria officinalis* L. subsp. *officinalis* (common fumitory)**

Specimens examined: Georges Bay (FLI), vii.1875, *A. Simson* 38 (HO!); Conara (TNM), 20.x.1925, *E. Gibson s.n.* (MEL2210067 [n.v.]); Hagley (TNM), 24.xi.1976, *D.I. Morris s.n.* (HO 96420!); Ulverstone (TNS), 10.i.1956, *B.R. Paterson s.n.* (NE 22397 [n.v.]); Sassafras, near Latrobe (TNS), 28.xii.1980, *B.H. Hyde-Wyatt s.n.* (HO 36985!).

Notes: This annual sprawling herb has been recorded as an occasional weed of crops in the north of the State but may be overlooked and mistaken for the widespread and common *Fumaria muralis* Sond. ex W.D.J.Koch subsp. *muralis*. A very early record (1875) from Georges Bay, St Helens, suggests that it was an early introduction.

Extra Tasmanian distribution: SA, Qld, NSW

Status: Doubtfully naturalised

***Pseudofumaria alba* (Mill.) Lidén subsp. *alba* (white fumitory)**

Specimens examined: Old Customs House, lower Murray Street. Near Parliament House, Hobart, 15.xi.1961, *W.M. Blacklow s.n.* (HO 6545!); Fern Tree, Hobart (cult.), 4.xii.1986, *D.I. Morris 86141* (HO!); Fern Tree, Hobart, 19.ix.1989, *D.I. Morris 86402* (HO!); 9 Lapoinya Road, Fern Tree (all TSE), 28.xi.1994, *D.I. Morris 86456* (HO!).

Notes: This occasionally cultivated perennial herb is known in Tasmania only from the Hobart area, with an early (1961) collection from a crack in a wall of a domestic garden where it was noted as acting as a nuisance.

Extra Tasmanian distribution: NSW

Status: Not naturalised

GERANIACEAE

***Erodium malacoides* (L.) L'Hér. (oval heronsbill)**

Specimens examined: Cataract Gorge, Launceston, 1.xi.1943, *W.M. Curtis s.n.* (HO 529453!); Cataract Gorge, Launceston (all TNM), 30.x.1945, *W.M. Curtis s.n.* (HO 29605! & HO 6668!).

Notes: Specimens of this annual herb have been collected in Tasmania on two separate occasions from Cataract Gorge, Launceston. Curtis (1956) described its distribution and habitat as "occasional in waste places". No notes detailing the status accompany the specimens and without subsequent collections in more than 70 years it is doubtful that the species has become naturalised.

Extra Tasmanian distribution: SA, NSW, Vic.

Status: Doubtfully naturalised

***Geranium yeoi* Aedo & Muñoz Garm. (Madeira cranesbill)**

Selected specimens examined (5 of 7): Hobart Rivulet, 250 m downstream from Wynyard Street (TSE), 1.xi.2002, *A.M. Gray 1236* (HO!); 17 Keen Court, Kingston (TSE), 18.xi.2002, *D.I. Morris 86773* (HO!); Christmas Hills, Bass Highway (TNS), 2.xi.2004, *M. Baker 938 and M.F.Duretto* (HO!); Hobart, Romilly Street, just before bridge (TSE), 27.x.2009, *M. Wapstra 984* (HO!); S of Boronia Beach (TSE), 7.xi.2009, *M. Wapstra 1000* (HO!).

Notes: This erect biennial herb is locally abundant at several sites in the greater Hobart area. It is mainly associated with disturbed habitats such as roadside verges and banks of rivulets in urban areas. Weedy populations are presumed to be garden escapes or have arisen from dumped garden waste.

Extra Tasmanian distribution: Vic.

Status: Naturalised

LAMIACEAE

***Mentha spicata* L. (spearmint)**

Selected specimens examined (5 of 9): Sandy Bay (TSE), i.1908, *L. Rodway s.n.* (HO 7312!); South Arm (TSE), 20.i.1912, *R.A. Black s.n.* (MEL2299781 [n.v.]); Mersey River at Croesus Cave State Reserve (TCH), 13.v.1983, *A. Moscal 2380*, (HO!); Black Bobs (TSR), 2.ii.1981, *A.E. Orchard 5341*, (HO!); New Town Rivulet (TSE), 10.ii.2008, *M. Wapstra 454*, (HO!).

Notes: This cultivated perennial herb is known in Tasmania from several disjunct locations. Curtis (1967) described its distribution and habitat as “naturalised in damp places”, noting that “this species is the one [mint species] most commonly cultivated as a pot-herb”. While it is a widespread species that has been present since at least 1908, it is usually only localised and grows mainly in riparian situations close to residential areas. Several populations have also been recorded in essentially undisturbed areas (e.g. Mersey River, Black Bobs).

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Sparingly naturalised

LENTIBULARIACEAE

Utricularia gibba L. (floating bladderwort)

Specimens examined: Wingara Road, Howden (TSE), 6.i.2012, *M.F. de Salas 109*, (HO!); Nabowla, ‘Dunbarton’, Bridport Back Road (BEL), v.2015, *L. Riggall s.n.* (HO 585568!).

Notes: This carnivorous herb is known in Tasmania from two disjunct locations. One collection, from Howden in the south of the State, was from an artificial garden pond. It was not intentionally cultivated there and it is thought to have been introduced as a contaminant, brought in with other ornamental plants in the pond. The Nabowla population was recorded growing in a dam/ornamental pond in a rural area of the State. The species is under-collected in Tasmania and has been observed in ponds and water features throughout the State (*M. de Salas pers. comm.*). It is considered native throughout mainland Australia but has never been recorded growing in natural habitats in Tasmania where it is not considered to be native.

Extra Tasmanian distribution: WA (native and naturalised), NT (native), SA, Qld (native), NSW (native), Vic. (native and naturalised)

Status: Doubtfully naturalised

MALVACEAE

Hibiscus trionum L. (bladder ketmia)

Selected specimens examined (5 of 9): Hobart, Royal Society Gardens (TSE), iv.1875, *W.W. Spicer s.n.* (HO 12950!); West Tamar (TNS), iii.1974, *T.T. Hague s.n.* (HO 30940!); 29 Brinsmead Road, Mt Nelson (TSE), 26.i.2006, *A.M. Buchanan 16399* (HO!); Sandfly, 202 Pelverata Road (TSR), 15.iv.2001, *J. Townrow s.n.* (HO 512128!); Norwood, 39 Norwood Avenue (TNM), iv.2008, *R. Hilder s.n.* (HO 547376!).

Notes: This annual herb is known in Tasmania from several widely-spread locations. Curtis and Morris (1975) described its distribution and habitat as “occasional as a weed of cultivation”. All collections appear to be from gardens, either deliberately cultivated or arising as a contaminant of vegetable seeds. However, most collections are not accompanied by notes indicating the status. The species does not appear to have escaped the confines of gardens.

Extra Tasmanian distribution: WA, SA, Qld (native and naturalised), NSW (native and naturalised), Vic.

Status: Not naturalised

Malva pseudolavatera Webb & Berthel. (Cretan mallow)

Specimens examined: Currie, near Department of Agriculture, King Island, 29.x.1976, *D.I. Morris s.n.* (HO 36209!); Old Currie tip site, Charles Street, King Island, ix.2009, *M. Batey s.n.* (HO 556712!); Stanley, Stanley Highway, E side of road, c. 4.4 km from Bass Highway junction, 24.ix.2010, *M.L. Baker 2336* (HO!); Stanley, Stanley Highway, 25.x.2010, *K. Fenner s.n.* (HO 560413!); King Island, from airport, towards Currie and also north (all KIN) 9.xi.2010, *A. Fergusson s.n.* (HO 561569!).

Notes: This large biennial herb is known to occur in the northwest of the State (including King Island) where it is primarily a coloniser of roadside verges and is now well-established, often locally abundant, and appears to be becoming more widespread.

Extra Tasmanian distribution: WA, SA

Status: Naturalised

MIMOSACEAE

Acacia baileyana F. Muell. (Cootamundra wattle)

Selected specimens examined (4 of 8): Southern Outlet (A6 N bound) 3 km S of Proctors Saddle (TSE), 19.viii.2002, *A.M. Gray 1211* (HO!); Between Acton Road and Single Hill (TSE), 12.ii.2009, *M. Wapstra 658* (HO!); Snug Falls Road (O’Briens Road junction) (TSE), 26.ix.2009, *M. Wapstra 945* (HO!); Cethana Road. [Claude Road, Gowrie Park, c. 5 km E of Cethana.] (cult.?) (TNS), 22.xi.2012, *S. Pinzon-Navarro s.n.* (CANB 863868.1 [n.v.]).

Notes: This commonly cultivated ornamental shrub is known in Tasmania from several collections mostly from the southeast of the State. It is most commonly found naturalised along roadside verges, spreading from nearby ornamental and amenity plantings. Some sites, such as along the Southern Outlet, Hobart,

appear to have been deliberately planted, along with several additional non-native *Acacia* species. The first herbarium record in 2002 belies a much longer period of naturalisation, which probably began in earnest in the 1980s (based on the maturity of some stands).

Extra Tasmanian distribution: WA, SA, Qld, NSW (native and naturalised), ACT, Vic.

Status: Naturalised

ONAGRACEAE

Epilobium nummulariifolium A.Cunn. (creeping willowherb)

Specimens examined: Royal Botanic Gardens, Hobart, c. i.1999, [collector unknown] (HO 323677!); 3 Curtis Ave, South Hobart, 13.xi.2002, *A.M. Gray s.n.* (HO 520616!); Woodbank Nursery, 25.ii.2005, *M.L. Baker 1556* (HO!) (all TSE).

Notes: This mat-forming perennial herb is known in Tasmania from a few locations in the southeast of the State. There exists insufficient evidence for it to be classified as naturalised, with the species only being recorded from a domestic garden on the outskirts of Hobart, where it is restricted to the garden and the immediate surrounds, and from two nurseries: Royal Tasmanian Botanic Gardens, as a weed of a propagating area, and at Woodbank Nursery, where it was a weed in a pot plant and in a garden bed. At present, this species is doubtfully naturalised but it has high potential to become more widespread and naturalised throughout the State.

Extra Tasmanian distribution: None

Status: Doubtfully naturalised

Oenothera biennis L. (evening-primrose)

Specimens examined: Valleyfield, New Norfolk (TSE), 12.i.2001, *D.I. Morris 86729* (HO!); Valleyfield, New Norfolk (TSE), 28.ii.2001, *A.M. Buchanan 15856* (HO!); Bass Highway, 2 km E of Irishtown Road junction (KIN) 2.xi.2004, *M. Baker 936 and M.F.Duretto* (HO!); Scottsdale tip off Bridport Road, c. 200 m N of Jetsons Road junction (BEL), 11.i.2005, *M.L. Baker 1386* (HO!).

Notes: This ornamental biennial herb was first collected in Tasmania as a weed of a lily crop. There is increasing evidence that it is becoming naturalised in various regions, mainly around highly disturbed sites such as crops, rubbish tips and roadside verges.

Extra Tasmanian distribution: NSW

Status: Sparingly naturalised

PLUMBAGINACEAE

Limonium sinuatum (L.) Mill. (wavyleaf sea-lavender)

Specimens examined: Whitemark (FLI), 10.i.2007, *A.M. Buchanan 16568* (HO!); Scottsdale tip off Bridport Road, 200 m N of Jetsons Road junction (FLI), 11.i.2005, *M.L. Baker 1394* (HO!); Glenora Road, Glenora [Bushy Park] (TSE), 25.i.2013, *M. Wapstra 1516* (HO!); Anglican Cemetery, Sorell (end of Henry Street) (TSE), 5.ii.2013, *M. Wapstra 1537* (HO!).

Notes: This ornamental perennial herb is known in Tasmania from several widespread collections, mainly from highly disturbed sites such as tips and roadside verges. It appears to have arisen from dumped garden waste or as an escape from ornamental plantings (including cemeteries). It is popular in the florist trade due to the “everlasting” nature of the cut flowers.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Sparingly naturalised

POLEMONIACEAE

Collomia grandiflora Douglas ex Lindl. (grand collomia)

Specimen examined: King Island (KIN), vi.1957, *L. Smith s.n.* (HO 19628! & HO 317247!).

Notes: Curtis (1967) described the distribution and habitat of this annual herb as “occasional as a weed of cultivated land”. No evidence supports this statement as the species is known in Tasmania from a single collection from a crop of potatoes on King Island sixty years ago—it has not been recorded since. Based on this evidence, the species cannot be considered naturalised to any degree in the State.

Extra Tasmanian distribution: NSW

Status: Not naturalised

PORTULACACEAE

Claytonia perfoliata Donn ex Willd. (miner's lettuce)

Specimens examined: Fern Tree, East Coast, Domestic garden [cult.], 4.i.1983, *D.I. Morris 8302* (HO!); Fern Tree, 6.i.1986, *D.I. Morris 862* (HO!); Woolton Court, Sandy Bay [Hobart suburb] (all TSE), 23.x.2009, *M.L. Baker 2105* (HO!).

Notes: This annual herb is known in Tasmania from a few collections from domestic gardens. One collection notes that it is “not invasive but behaving as a nuisance

weed in gardens, and in cracks in walls and pots". It is not known if the populations at the collection sites have persisted. The species is occasionally grown as a pot or garden bed herb and used in salads. It readily self-sows but has not appeared to have spread beyond domestic gardens.

Extra Tasmanian distribution: Vic.

Status: Not naturalised

PRIMULACEAE

Lysimachia minima (L.) U.Mans & Anderb. (kause chaffweed)

Specimens examined: Rubicon Sanctuary, Port Sorell (FLI), 14.x.2009, *P. Collier 5358* (HO!); Tinderbox, East Coast (TSE), 17.x.2011, *D.E. Albrecht s.n.* (HO!).

Notes: This diminutive annual herb is likely to be overlooked and much more widespread in Tasmania than indicated by current collections. Collections to date have been from a weedy habitat (Tinderbox) or as a single plant growing as a weed in a gravel drive. The species is widely naturalised on mainland Australia. A doubtfully naturalised status is assigned here pending further information on its distribution.

Extra Tasmanian distribution: WA, SA, NSW, ACT, Vic.

Status: Doubtfully naturalised

PROTEACEAE

Hakea laurina R.Br. (pincushion hakea)

Specimens examined: University of Tasmania gardens, Hobart (cult.), 12.iii.2002, *R. Dillon s.n. and G.Jordan* (HO 528995!); Coningham, 7.v.2005, *J. Taylor s.n.* (HO 541827!); Coningham, 21.x.2008, *R.G. Tyson 906* (HO!) (all TSE).

Notes: Apart from one collection from cultivation, this ornamental shrub is known in Tasmania from two specimens from the same site, collected approximately three years apart. Here, the species had most likely spread from nearby gardens (where it was noted as being present) into coastal heathy woodland, and occurred as a population of mature and young plants. The population was removed in 2008. The species is a popular garden plant in Tasmania and further naturalised populations are expected to occur. However, there is no evidence to suggest it is more widely naturalised.

Extra Tasmanian distribution: WA (native and naturalised), SA

Status: Previously naturalised

Lomatia fraseri R.Br. (tree lomatia)

Specimens examined: Pipeline Track, Fork Creek Catchment, Fern Tree, 12.iii.2002, *D. Ziegler 237* (HO!); Pipeline Track, Fern Tree, near Browns Road, 25.vi.2009, *P.A. Tyson 966* (HO!); Fern Tree, 30.vi.2009, *M.L. Baker 2098* (HO!); Mount Wellington, Pipeline Track 30.xi.2010, *M. Wapstra 1181* (HO!) (all TSE).

Notes: This shrub or small tree is known in Tasmania from several specimens from a single localised population comprised of several individuals and patches of plants growing in wet sclerophyll forest on the foothills of Mt Wellington in the State's southeast. There has been a concerted effort at removal by a local landcare group, but some individuals, presumably escaped from garden plantings, are still present. The species is native on mainland Australia, where it is a widespread and sometimes locally common species in wet mountain forests.

Extra Tasmanian distribution: NSW (native), Vic. (native)

Status: Sparingly naturalised

RANUNCULACEAE

Adonis microcarpa DC. (pheasant's eye)

Specimen examined: Flinders Island, Wybalenna area (FLI), 12.v.1999, *S. Welsh s.n.* (HO 444814!).

Notes: This erect annual herb has only been collected once in Tasmania, from a dry, sheep grazing paddock on Flinders Island. According to notes accompanying the specimen, the population consisted of approximately nine plants over an area of 30 m². A doubtfully naturalised status is assigned here pending further information on its distribution.

Extra Tasmanian distribution: WA, SA, Qld, NSW

Status: Doubtfully naturalised

Aquilegia vulgaris L. (common columbine)

Selected specimens examined (5 of 9): Poison Hill, 9 km E of Woodsdale (TSE), 6.x.1984, *A. Moscal 8517* (HO!); Poimena "township", Blue Tier (BEL), 28.xii.2006, *M. Wapstra 86* (HO!); Pipers River, downstream of Lilydale Road crossing (FLI), 18.xii.2007, *M. Wapstra 409* (HO!); North West Bay River (TSE), 7.xi.2000, *A.C. Rozefelds 1895* (HO!); River Road, N of Deloraine (TNS), 21.xi.2012, *M. Wapstra 1390* (HO!).

Notes: This commonly cultivated perennial herb is known in Tasmania from several widely spread populations. Most have been recorded from roadside verges or riparian zones, often in close proximity to

towns or old homesteads, presumably arising from dumped garden waste, persisting from old plantings or escaping from nearby gardens. Several coloured forms are present. The number of formal collections does not properly reflect its widespread and increasing range.

Extra Tasmanian distribution: NSW, Vic.

Status: Naturalised

***Ranunculus acris* L. subsp. *acris* (meadow buttercup)**

Selected specimens examined (5 of 11): Electrona-Snug (TSE), 7.xii.1968, *W.M. Curtis s.n.* (HO 21139!); Saddle Road, Kettering (TSE), xi.1982, *Y. Menadue s.n.* (HO 91564!); Saddle Road, Kettering (TSE), 3.xi.1982, *Y. Menadue s.n.* (HO 58494!); Balfour, Circular Head (TWE), 12.xii.1983, *A. Moscal 4785* (HO!); Saddle Road, Kettering (TSE), 16.xi.2012, *M. Wapstra 1418* (HO!).

Notes: This erect perennial herb is locally naturalised in the Snug-Electrona-Kettering area in the State's southeast, where it has been present since at least the 1960s. It remains locally abundant at several sites in habitats that include roadside ditches and wet pastures. One outlying record is from clearings at the former settlement site of Balfour in the State's northwest, suggesting a potentially wider distribution. Curtis and Morris (1975) described the distribution and habitat as "southern Tasmania in a roadside ditch between Snug and Electrona".

Extra Tasmanian distribution: Vic.

Status: Naturalised

***Ranunculus arvensis* L. (field buttercup)**

Specimen examined: Cressy (TNM), 2.i.1974, *B.H. Hyde-Wyatt s.n.* (HO 29167!).

Notes: This annual herb is known in Tasmania from a single record from Cressy in 1974. There are no accompanying notes to give any indication of the extent or status of the species at the location. As such, there is little evidence to indicate it has become naturalised in Tasmania. Curtis and Morris (1975) described the distribution and habitat as "an occasional weed of cultivation in the north", presumably based on the 1974 record from Cressy.

Extra Tasmanian distribution: SA, NSW

Status: Not naturalised

***Ranunculus flammula* L. subsp. *flammula* (lesser spearwort)**

Selected specimens examined (3 of 6): Nabowla (BEL),

2.i.1980, *A.R. Walker s.n.* (HO 32340!); Nabowla [grown on from seed] (BEL), xi.1984, *A.R. Walker s.n.* (HO 88873!); Hobart (cult.) (TSE), 14.iii.1985, *Y. Menadue E37* (HO!).

Notes: This perennial herb is known in Tasmania from specimens collected in the northeast (Scottsdale and Nabowla) and subsequently from cultivated specimens collected from these locations. There is no collecting information regarding its status and it has not been collected for more than 30 years. As such, there is little evidence to indicate that it has become naturalised in Tasmania.

Extra Tasmanian distribution: Vic.

Status: Not naturalised

***Ranunculus sceleratus* L. subsp. *sceleratus* (celery buttercup)**

Specimen examined: Hobart (TSE), *L. Rodway 10a* (HO!).

Notes: This annual or short-lived perennial herb is known in Tasmania from a single specimen. The undated collection (Leonard Rodway was Tasmania's honorary government botanist from 1896–1932) includes no notes regarding the plant's habitat or population details. It was listed in *The Tasmanian Flora* without any notes about its status (Rodway 1903). Its distribution and habitat were subsequently described by Curtis (1956) as "occasional in ditches", but no evidence exists to substantiate this comment. Based on the scant information it is difficult to justify that it was ever truly naturalised in Tasmania.

Extra Tasmanian distribution: SA, Qld, NSW, ACT, Vic.

Status: Not naturalised

***Ranunculus trilobus* Desf. (large annual buttercup)**

Selected specimens examined (5 of 11): Fenton Forest, Gretna (TSE), 15.xi.1971, *D.I. Morris s.n.* (AD 123349!); Bushy Park (TSE), xii.1971, *D.I. Morris s.n.* (HO 29196!); Glenora (TSE), xii.1972, *D.I. Morris s.n.* (HO 29498!); Coastal strip between Richardson Point and Dartys Corner, S of Temma (KIN), 31.x.2008, *M. Wapstra 578* (HO!); Perth, Illawarra Road (TNM), 19.xi.2014, *M. Wapstra 2074* (HO!).

Notes: This annual herb is known in Tasmania from several widespread collections. Curtis and Morris (1975) described its distribution as "recorded only from Bushy Park, Derwent Valley", from where there are several specimens from the 1970s and 1980s, collected mainly from wet areas and ditches in farming areas. Since then

it has been found to be more widespread, including Cressy, in the State's midlands, and near Temma, on the State's west coast (the latter from a natural site and apparently unusual habitat for the species i.e. a coastal "marsupial lawn"). The species is also more widespread than indicated by formal collections, with additional populations being observed at Lillico Beach (FLI region) (M. Wapstra pers. obs.).

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Naturalised

ROSACEAE

***Rubus philadelphicus* Blanch. (Philadelphia blackberry)**

Selected specimens examined (4 of 7): Eddie Ck, Piper's Brook Rd, 13.i.2000, *T. Rudman 27/4* (AD [n.v.]); Eddie Ck, 4 km W of Pipers River (town) on Bridport Rd, 10.ii.2000, *T. Rudman TRRB1* (AD [n.v.]); Piper's Brook, 28.iii.2005, *D.E. Symon s.n.* (AD 178729 [n.v.]); Pipers Brook, 22.x.2005, *D.E. Symon 17176* (AD [n.v.]) (all BEL).

Notes: This deciduous woody shrub, cultivated for its edible fruit, is locally naturalised in the Pipers River area in the State's northeast. It has also been recorded growing as a vigorously-suckering cultivated shrub at Forth in the State's northwest (Evans *et al.* 2007)

Extra Tasmanian distribution: NSW

Status: Naturalised

***Rubus rubritinctus* W.C.R. Watson (blackberry)**

Selected specimens examined (5 of 6): Stoney Rise, Gov[ernment] Office Car Park, beside public carpark, Devonport (FLI), 8.i.2000, *T. Rudman 13* (AD [n.v.]); Geeveston tip area (TSR), 10.i.2000, *T. Rudman 22/2* (AD [n.v.]); George Town, Eddie Cr[ee]k, Piper's Brook R[oad] (BEL), 13.i.2000, *T. Rudman 27/8* (AD [n.v.]); Lilydale Road (BEL), 13.i.2000, *T. Rudman 30/1* (AD [n.v.]); Walpole Street, Franklin, Huon Valley (TSR), 2.iii.2007, *K.J. Evans 107* (HO!).

Notes: This sprawling perennial shrub is known in Tasmania from several disjunct locations including the northeast, central north, and south of the State. This taxon was previously included within the widespread and common *R. fruticosus* L. species-aggregate, a name that served as a catch-all for all weedy blackberry in Australia. The aggregate was revised by Evans *et al.* (2007), who found it to include *R. rubritinctus*. The species may have been overlooked in Tasmania due to its similarity with other taxa related to *R. fruticosus*.

Extra Tasmanian distribution: SA

Status: Naturalised

***Rubus rugosus* Sm. (keriberry)**

Selected specimens examined (5 of 9): 61a Salvator Road, West Hobart (cult.) (TSE), *J. Chraska s.n.* (HO 30552!); Coronation Road off Fortescue Bay Road (TSE), 15.iv.1976, *A.M. Gray s.n.* (HO 7440!); Smithton (KIN), 27.iv.1977, *J.W. Lees s.n.* (HO 569508!); Elliott (cult.) (TNS), 10.i.1984, *P.A. Regel s.n.* (HO 76701!); Arthur Highway, c. 1.2 km W Eaglehawk Neck/Blowhole Road (TSE), 8.v.2013, *M. Wapstra 162*, (HO!).

Notes: This sprawling perennial shrub is grown in Tasmania for its edible berries. It is known from several cultivated specimens from domestic gardens and hedges. In addition, there are several widespread but localised collections of non-cultivated plants that were growing in waterways and bushland.

Extra Tasmanian distribution: NSW, Vic.

Status: Sparingly naturalised

RUBIACEAE

***Galium tricornutum* Dandy (rough corn bedstraw)**

Specimens examined: Unknown [Hj.?] *Eichler 17044* (CANB 803049.1 [n.v.]); Sandy Bay, Hobart (TSE), xii.1896, *L. Rodway s.n.* (HO 512698!); Hobart Domain (TSE), [collector unknown] (MEL2098143 [n.v.]).

Notes: This annual sprawling herb is known in Tasmania from three specimens. Two were collected from the Hobart area, whilst the location of the third is unknown (Thompson 2009). No information regarding the plant's habitat, abundance or degree of naturalisation are recorded.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Not naturalised

***Galium verum* L. (yellow bedstraw)**

Specimens examined: Corner of Dairy Plains and Cheshunt Roads. (TNS), 10.i.2000, *A.M. Buchanan 15656* (HO!); Corner of Harwood Road and Dairy Plains Road (TNS), 1.ii.2008, *A.M. Buchanan 16852* (HO!).

Notes: This stoloniferous perennial herb is known from two specimens collected from the same general vicinity, where it was described as naturalised along a short stretch of grassy roadside (Thompson 2009). The species has persisted at the site throughout the 2000s.

Extra Tasmanian distribution: Vic. (formerly naturalised)

Status: Sparingly naturalised

SALICACEAE

***Salix alba* L. var. *vitellina* (L.) Stokes (golden upright willow)**

Selected specimens examined (5 of 17): St Peters Pass (ca 5 km NE of Oatlands) (TSE), 22.ix.1976, *W.M. Curtis s.n.* (HO 36157!); Penguin-old highway (cult.)(TNS), 31.x.2003, *M.L. Baker* 249 (HO!); Riverside, Launceston (TNM), 1.xi.2003, *M.L. Baker* 281 (HO!); 16.4 km from Bridport on Waterhouse Road, Deep Water property (FLI), 11.i.2005, *M.L. Baker 1310 and A.Gray* (HO!); Kooyong Glen, Dynnyrne (cult.?) (TSE), 9.xii.2010, *J. Gouldthorpe 11* (HO!).

Notes: This deciduous ornamental tree is widely cultivated throughout the State and is often encountered growing on roadsides, the sides of watercourses and ponds, and in large parks and gardens. In almost all instances it appears to have been planted, and only a small number of plants have been observed where their origin may have resulted from vegetative spread from nearby trees. For a comprehensive discussion of this taxon's distribution and status in Tasmania see Baker (2009).

Extra Tasmanian distribution: SA, NSW, ACT, Vic

Status: Doubtfully naturalised

***Salix* × *calodendron* Wimm. (holme willow)**

Specimens examined: Queenstown, bank of Queen River (TWE), 13.ix.2006, *M.L. Baker 1728* (HO!); Coombes Road, Longley, (cult.?) (TSE), 22.xi.2006, *M.L. Baker 1771* (HO!).

Notes: This deciduous ornamental tree is known in Tasmania from two disjunct and localised populations. In both cases the plants appear to have been planted, with only the population at Queenstown showing signs of minor vegetative spread. For a comprehensive discussion of this taxon's distribution and status in Tasmania see Baker (2009).

Extra Tasmanian distribution: SA, NSW

Status: Doubtfully naturalised

***Salix matsudana* Koidz. 'Tortuosa' (tortured willow)**

Selected specimens examined (5 of 11): Rosny Golf Course (cult.) (TSE), 30.iv.2003, *M.L. Baker 104* (HO!); Deloraine, Rotary Caravan Park, Deloraine (cult.)(TNM), 30.x.2003, *M.L. Baker 230* (HO!); SW Roseberry, waste transfer station (TWE), 15.ix.2004, *M.L. Baker 568* (HO!); Pioneer (BEL), 11.i.2005, *M.L. Baker 1363* (HO!); Lauderdale, between houses and the 'Lauderdale' wetland, (cult.?) (TSE), 24.i.2013, *M. Wapstra 1512* (HO!).

Notes: This deciduous ornamental tree is widely cultivated throughout Tasmania. In the majority of cases, the trees appear to have been planted, with only a small number of individuals or small groups of trees found growing outside of cultivation in habitats such as municipal rubbish tips. A small infestation of plants of hybrid parentage (*S. matsudana* Koidz. 'Tortuosa' and *S. × fragilis* L. nothovar. *fragilis*) was recorded at Huonville. For a comprehensive discussion of this taxon's distribution and status in Tasmania see Baker (2009). A large infestation of hybrid willows at Launceston, in the State's north, was recently observed, with some plants showing the twisted leaves and stems that are characteristic of the tortured willow, suggesting that *S. matsudana* Koidz. 'Tortuosa' is a parent.

Extra Tasmanian distribution: NSW, Vic.

Status: Doubtfully naturalised

***Salix purpurea* L. (purple osier)**

Specimens examined: Royal Tasmanian Botanical Gardens (cult.) (TSE), 4.iii.2004, *M.L. Baker 389* (HO!); Oldina picnic area/forest reserve (TNS), 3.xi.2004, *M.L. Baker 989* (HO!); Just below Winkleigh Bridge (TNS), ii.2005, *M. Askey-Doran s.n.* (HO 532975!).

Notes: This deciduous ornamental shrub has been cultivated in Tasmania for stream bank stabilisation purposes and as an ornamental. Whether it is naturalised in Tasmania or whether all plants have been planted is unknown. For example, at the Oldina Forest Reserve in the northwest of the State, approximately 400 m of creek line is dominated by *S. purpurea*. It was originally planted at this site but it is not known the extent of the planting or if vegetative spread has occurred. For a comprehensive discussion of its distribution and status in Tasmania see Baker (2009).

Extra Tasmanian distribution: NSW, Vic.

Status: Sparingly naturalised

***Salix* × *rubens* Schrank (basket willow)**

Selected specimens examined (5 of 7): Nelson River, on Lyell Highway, 10 km east-southeast of Gormanston (TWE), 13.xi.1980, *B. Briggs 7084* (NSW 393768 [*n.v.*]); Kingborough Refuse Centre (TSE), 30.iv.2003, *M.L. Baker 106* (HO 532977!); Kingborough Refuse Centre (TSE), 20.i.2004, *M.L. Baker 364* (HO 525024!); Faggs Gully Creek, Geilston Bay (TSE), 17.ii.2004, *M.L. Baker 378* (HO 525022!); Westerway, banks of Tyenna River (TSE), 16.ii.2005, *M.L. Baker 1535 A. Crane and E. Pope*, (HO 532972!).

Notes: This deciduous ornamental tree is occasionally cultivated in Tasmania. It is known from one small population where it is thought to have spread via vegetative means. The taxon may be more widespread as it is easily confused with the common and widespread *S. × fragilis* nothovar. *fragilis* and *S. alba* var. *vitellina*. At Westerway, *S. × fragilis* nothovar. *fragilis* and *S. alba* var. *vitellina* are thought to have hybridised, producing young plants referable to *S. × rubens*. For a comprehensive discussion of this taxon's distribution and status in Tasmania see Baker (2009).

Extra Tasmanian distribution: SA, NSW, ACT, Vic

Status: Doubtfully naturalised

***Salix × sepulcralis* Simonk. nothovar. *chrysocoma* (Dode) Meikle (golden weeping willow)**

Selected specimens examined (5 of 15): Melton Mowbray (TSE), 21.ix.1976, *W.M. Curtis s.n.* (HO 36158!); Huonville, Apex Park, (cult.) (TSR), 21.x.2003, *M.L. Baker 172* (HO!); Campbell Town, Elizabeth River (cult.) (TNM), 30.x.2003, *M.L. Baker 216* (HO!); Emu River, pumphouse area, Burnie (TNS), 31.x.2003 *M.L. Baker 248*, (HO!); 4.9 km W of Bridport on the Bridport/George Town Road (cult.) (FLI), 12.i.2005, *M.L. Baker 1420* (HO!).

Notes: This deciduous ornamental tree is widely cultivated throughout the State and is often encountered on roadsides, the sides of watercourses and ponds, and in large parks and gardens. In almost all instances, it appears to have been planted and only a small number of plants have been observed where their origin may have resulted from vegetative spread from nearby trees. For a comprehensive discussion of this taxon's distribution and status in Tasmania see Baker (2009).

Extra Tasmanian distribution: NSW, Vic.

Status: Doubtfully naturalised

SCROPHULARIACEAE

***Antirrhinum majus* L. (snapdragon)**

Selected specimens examined (5 of 8): George Town Waste Transfer Station (tip) off Mount George Road (FLI), 12.i.2005, *M.L. Baker 1442* (HO!); Launceston tip, Remount Road, near Newham Creek (TNM), 1.ii.2005, *M.L. Baker 1524* (HO!); Flinders Island, Whitemark Tip site off Memana Road (FLI), 17.v.2011, *M.L. Baker 2562* (HO!); Tasman Highway, near Cambridge (TSE), 22.xi.2011, *M. Wapstra 1315* (HO!); Lyell Highway, just W of Granton and Bridgewater Causeway (TSE), 1.v.2013, *M. Wapstra 1627* (HO!).

Notes: This perennial herb is known in Tasmania from

seven widespread collections. In most cases no more than two plants have been recorded at each of the sites. However, at one suburban site in Hobart, it was noted as being 'occasional'. There is no evidence that plants have persisted at these sites.

Extra Tasmanian distribution: None

Status: Sparingly naturalised

***Kickxia spuria* (L.) Dumort. subsp. *integrifolia* (Brot.) R.Fern. (bluntleaf toadflax)**

Specimens examined: Rifle Range, Sandy Bay, Hobart (TSE), *R.A. Black s.n.* (MEL2095212 [n.v.]); Westbury (TNM), ii.1943, *J.H. Wilson s.n.* (HO 411601!); Selbourne Road, Hagley (TNM), 18.ii.2000, *M. Greenhill s.n.* (HO 502751!).

Notes: This perennial herb is known in Tasmania from three widespread locations. Curtis (1967) described the distribution and habitat as "occasional as a weed of cultivation". Two of the specimens are noted as being weeds of crops, with one growing in a flax crop and the other being widespread and sporadic in a pyrethrum crop. No evidence exists to suggest that it has persisted at any of the sites.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Doubtfully naturalised

***Veronica peregrina* L. (wandering speedwell)**

Specimens examined: V.D.L. [Van Diemensland], *F. Mueller s.n.* (MEL2256541!); Woodhall. South Esk Riv[er]. Van Diemensland (TNM), i.1849, *C. Stuart 459*, (MEL!).

Notes: This annual herb is known in Tasmania from two collections from more than 150 years ago. Inspection of these revealed that they are almost certainly duplicates of each other. Curtis (1967) described its distribution and habitat in Tasmania as "occasional in cultivated ground". However, there is no evidence to support this statement. No information regarding its habitat, abundance and degree of naturalisation are recorded with the specimens. For a discussion of this species in Tasmania see Baker (2016).

Extra Tasmanian distribution: SA, NSW, ACT, Vic.

Status: Not naturalised

SOLANACEAE

***Hyoscyamus albus* L. (white henbane)**

Specimen examined: Near Hobart Town (TSE), xii.1876, *W.W. Spicer 121* (HO!).

Notes: This annual or short-lived perennial herb is known in Tasmania from a single specimen collected more than 140 years ago. It is listed in Spicer's *A Handbook of the Tasmanian Plants* (Spicer 1878b as *H. niger*) as introduced but not widely established enough to consider it being part of the flora. Curtis (1967) described its distribution and habitat as "occasional as a weed of cultivation". No information regarding its habitat, abundance and degree of naturalisation are recorded and there is little evidence to indicate that it was ever naturalised in Tasmania. See Figure 6.

Extra Tasmanian distribution: Vic.

Status: Not naturalised

***Nicotiana sylvestris* Speg. (woodland tobacco)**

Specimens examined: 61a Salvator Road, West Hobart (cult.) (TSE), *J. Chraska s.n.* (HO 30551!); Stieglitz Tip, St Helens (FLI), 13.ii.2009, *M.L. Baker 1970* (HO!).

Notes: This annual or short-lived perennial herb is occasionally cultivated as an ornamental garden plant in the State. It has been recorded outside of cultivation at a disused tip-site on the east coast where it has presumably arisen from dumped garden waste.

Extra Tasmanian distribution: None

Status: Not naturalised

***Physalis peruviana* L. (Cape gooseberry)**

Selected specimens examined (5 of 11): Boat Harbour, Wynyard area (KIN), 17.i.1975, *B. Copley 4667* (AD 97508260 [n.v.]); Suburban garden, Blackmans Bay (TSE), 18.v.1985, *P.A. Collier 534* (HO!); Great Dog Island (cult.) (FLI), 8.xii.1986, *S. Harris s.n.* (HO 123909!); Huonville, S side of river (TSR), 16.ii.2006, *A.M. Buchanan 16407* (HO!); Lovers Lane, Naracoopa, King Island (KIN), 26.i.2015, *M. Batey 436 and G. Batey* (HO!).

Notes: This short-lived shrub is occasionally cultivated in Tasmania as an ornamental and for its edible fruit. Outside of cultivation it is known from several disjunct locations from weedy habitats, including roadsides, tip sites, vegetable gardens and agricultural land, but occasionally also in relatively undisturbed bushland. Populations are usually restricted to small numbers of plants and are thought to have originated from dumped garden waste or spread via animals.

Extra Tasmanian distribution: WA, SA, Qld, NSW, Vic.

Status: Naturalised

***Solanum nodiflorum* Jacq. (small-flowered nightshade)**

Specimen examined: Clarence Point, West Tamar (FLI), 28.ix.1993, *A.M. Buchanan 13453* (HO!).

Notes: This annual or short-lived perennial herb is known in Tasmania from a single collection made in 1993 from disturbed ground at the edge of a *Eucalyptus* forest in the north of the State. No information regarding the plant's abundance and degree of naturalisation are recorded, making it difficult to assign any naturalised status. It may be mistaken for the widespread and commonly naturalised *Solanum nigrum* L.

Extra Tasmanian distribution: WA, NT, Qld (?native and naturalised), NSW (?native and naturalised), Vic.

Status: Doubtfully naturalised

***Solanum triflorum* Nutt. (cutleaf nightshade)**

Selected specimens examined (5 of 7): Seven Mile Beach, 3.iv.2000, *A.M. Buchanan 15695* (HO!); Pitt Water, Pittwater Road, 8.i.2004, *T. Swan s.n.* (HO 527944!); Service Depot, Five Mile Beach, 10.iii.2006, *A. Crane s.n.* (HO 539022!); Tasman Highway, Tunnel Hill section, E side, 9.vi.2010, *M. Wapstra 1115* (HO!); 533 Pass Road, Mornington, 11.iv.2011, *M. Moore s.n.* (HO 562180!) (all TSE).

Notes: This annual herb is known in Tasmania from a small number of localised but well-established populations in the State's southeast. It is most often recorded growing in sandy soils at low elevations.

Extra Tasmanian distribution: WA, SA, NSW, ACT, Vic.

Status: Naturalised

URTICACEAE

***Parietaria judaica* L. (wall pellitory)**

Selected specimens examined (4 of 6): 17 Keen Court, Kingston, 7.i.1998, *D.I. Morris 86648* (HO!); 11 Carr Street, North Hobart, 30.vi.2008, *M.L. Baker 1890* (HO!); lower side (private car park), Bathurst Street, Hobart, 30.xi.2012, *M. Wapstra s.n.* (HO 568271!); Hobart, corner of Collins Street and Barrack Street 18.ix.2015, *M.L. Baker 3012* (HO!) (all TSE).

Notes: This perennial herb is known in Tasmania from a small number of specimens from the State's southeast. It has been recorded as a weed in two gardens and as single plants growing from the cracks of walls and footpaths.

Extra Tasmanian distribution: WA, SA, Qld, NSW, Vic.

Status: Doubtfully naturalised



Figure 6. This is the only collection of *Hyoscyamus albus* from Tasmania. Without contextual collecting information, it cannot be used as evidence to assign a naturalised status.

Gymnospermae

PINACEAE

Pinus wallichiana A.B.Jacks. (Bhutan pine)

Specimen examined: Trevallyn Cataract Gorge, track on N side of South Esk River between First Basin and Kings Bridge, 13.ii.2009, *M.L. Baker 1974* (HO!); Cataract Gorge, track from Kings Bridge to Gorge (all TNM), 8.xi.2017, *M.L. Baker 3393* (HO!).

Notes: This evergreen conifer is known in Tasmania from a single localised population at Launceston's Cataract Gorge. The population consists of several plants that have most likely spread from nearby cultivated plants and includes mature and juvenile plants.

Extra Tasmanian distribution: None

Status: Sparingly naturalised

Monocotyledoneae

ALOEACEAE

Kniphofia uvaria (L.) Oken (red-hot poker)

Specimens examined: Balfour (TWE), 12.xii.1984, *A. Moscal 4783* (HO!); Tamar Cut (W of track) (TNM), 18.i.2009, *M. Wapstra 629* (HO!); Gowrie Park, near Wilderness Village (TNS), 14.iii.2010, *L.H. Cave, 1098* (HO!); Junction Arthur Highway and Kellevie Road (TSE), 21.xi.2010, *M. Wapstra 1178* (HO!); Encampment Cove, Kintail home site, Maria Island (TSE), 8.iii.2011, *M.L. Baker 2368* (HO!).

Notes: This tufted perennial herb is widely cultivated throughout the State as a garden and amenity plant. It has become naturalised to varying degrees at several locations with populations ranging in size from single clumps through to numerous individuals. It is most often seen growing on roadsides and bushland adjacent to urban areas, where it has escaped cultivation or arisen from dumped garden refuse. A particularly large population, in excess of 250 plants, was recently observed at Mt Nelson in the State's south, growing in a remnant bushland reserve (A. Muyt pers. comm.). See Figure 7.

Extra Tasmanian distribution: NSW, Vic.

Status: Naturalised

CYPERACEAE

Carex buxbaumii Wahlenb. (club sedge)

Specimens examined: Western Mountains [Western Tiers]

(?TCH), xii.1908, *L. Rodway s.n.* (HO 97156!); Near Bronte Lagoon (TSR), 23.xi.2004, *A.J. North s.n.* (HO 533230!).

Notes: This rhizomatous sedge is known in Tasmania from two collections. No information regarding its abundance and degree of naturalisation are recorded although the most recent one notes that the plants were growing in damp native grassland. Due to the lack of notes accompanying the specimens it is difficult to determine its status in Tasmania.

Extra Tasmanian distribution: NSW

Status: Doubtfully naturalised

Carex pilulifera L. (pill sedge)

Specimen examined: Lynchford, Queenstown (TWE), 15.xii.1994, *A.J. North s.n.* (HO 410951!).

Notes: This densely tufted perennial sedge is known in Tasmania from a single specimen, collected more than 20 years ago from a small population growing along a tramline at Lynchford on the State's west coast. It is not known if the species is still present at the site.

Extra Tasmanian distribution: None

Status: Doubtfully naturalised

Carex scoparia Schkur. ex Willd. (broom sedge)

Specimen examined: Arthur River at Kanunnah Bridge (KIN), 23.xii.1983, *A. Moscal 5179* (HO!).

Notes: This perennial sedge is known in Tasmania from a single specimen, collected from the Arthur River crossing at the Trowutta Forest Reserve. Notes regarding the species at the site indicate that it was a rare coloniser of alluvial sand. It has not been recorded for more than 30 years and is considered doubtfully naturalised due to the highly dynamic nature of its habitat.

Extra Tasmanian distribution: None

Status: Doubtfully naturalised

Carex testacea Sol. ex Boott (orange sedge)

Specimens examined: Intersection of Brooker Highway and Burnett Street, Hobart (cult.), 23.i.1987, *A.M. Buchanan 9870* (HO!); Princes Park, Hobart (cult.), 25.v.1988, *W.M. Curtis s.n.* (HO 327899!); Brooker Highway at Burnett Street, Hobart (cult.), 9.vi.1989, *W.R. Watson s.n.* (HO 114902!); Tasmania (cult.), 30.xi.2002, *A. Crane s.n.* (HO 520296!); Sandy Bay, track at end of Marlborough Street. Hobart 5.xii.2007, *M.L. Baker 1853* (HO!) (all TSE).

Notes: This tufted perennial sedge is known in Tasmania from five collections, all from the Hobart



Figure 7. Recent collections of *Kniphofia uvaria* have shown that it has become naturalised and occurs in several populations in Tasmania. This is an example of a species that does not lend itself to easy collection or curation, so it is probably under-represented in the formal collection at the Tasmanian Herbarium.

area. All but a single plant were collected from ornamental plantings or cultivated specimens. The only non-cultivated specimen was from a single plant growing on the side of a track in a recently developed bushland remnant. Curtis and Morris (1994) listed it in their flora and stated that it "...could become invasive". Little evidence exists to suggest that it is naturalised in Tasmania.

Extra Tasmanian distribution: None

Status: Not naturalised

***Isolepis hystrix* (Thunb.) Nees (awned clubsedge)**

Selected specimens examined (4 of 9): Powranna Main Road, close to gateway of Hummocky Hills track (TNM), 15.xi.1996, *A.J. North s.n.* (HO 322628!); Freshwater soak just W of Calverts Lagoon, South Arm (TSE), 20.xii.2005, *M. Visoiu 120* (HO!); Between George Town and Bell Bay (FLI), 30.x.2006, *J.B. Davies s.n.* (HO 542926!); Perth, Illawarra Road, S side (TNM), 19.xi.2014, *M. Wapstra 2075* (HO!).

Notes: This annual sedge, although only detected as late as 1996, is now known to be locally common and widely distributed in Tasmania. It is associated with roadside drains, freshwater (and sometimes slightly saline) lagoons, herb fields and other moist disturbed sites. Although it is highly distinctive, its ephemeral habit and small size have possibly led to it being overlooked at other similar habitats and locations.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Naturalised

HAEMODORACEAE

***Anigozanthos flavidus* Redouté (evergreen kangaroo paw)**

Specimens examined: Binalong Bay Road, Binalong Bay (FLI), 1.viii.1975, *J. Robin s.n.* (HO 327793!); Creek, 0.8-1 km N of Binalong Bay (FLI), 5.i.2006, *M.F. Duretto 2074* (HO!); Paddocks adjacent to the Postmans Track Pass (KIN), 23.ii.2005, *P. Hefferon s.n.* (HO 536135!); Binalong Bay, Grants Point Road (cult.?) (FLI), 13.ii.2009, *M.L. Baker 1962* (HO!).

Notes: This rhizomatous perennial herb is widely cultivated in Tasmania and is known from several collections that appear to be derived from nearby garden plantings. At one location, numerous plants were recorded as escaping from cultivation and growing on the fringe of the Rocky Cape National Park.

Extra Tasmanian distribution: WA (native), NSW

Status: Sparingly naturalised

HYDROCHARITACEAE

***Lagarosiphon major* (Ridl.) Moss (oxygen weed)**

Specimen examined: Royal Botanic Gardens, Hobart (cult.?) (TSE), 24.v.1983, *D.I. Morris 8350* (HO!).

Notes: This rhizomatous aquatic perennial herb is known in Tasmania from a single, possibly cultivated, specimen from a pond at the Royal Tasmanian Botanical Gardens (Hobart). There is no evidence that it has persisted or spread from the site.

Extra Tasmanian distribution: NSW (doubtfully naturalised)

Status: Not naturalised

IRIDACEAE

***Tritonia gladiolaris* (Lam.) Goldblatt & J.C.Manning (chiffon lace)**

Specimens examined: S[outh] of Murdunna (TSE), 19.x.1973, *W.M. Curtis s.n.* (HO 58867!); Railton area, S of Dulverton Hill Road (TNS), 22.xi.2013, *M. Wapstra 1396* (HO!); Arthur Highway [just WNW of Flinders Bay Road junction] (TSE), 18.x.2013, *M. Wapstra 1474* (HO!).

Notes: This perennial herb is known in Tasmania from two widely separated locations. Curtis and Morris (1994) described its distribution and habitat, based on a 1973 collection (as *Tritonia lineata* (Salisb.) Ker Gawl.), as "introduced, recorded only from a sandy bank in light Eucalypt forest at Murdunna (East Coast), apparently well-established". It was recently collected from (presumably) the same site and described as growing in several dense patches along an 80 m section of roadside verge. It has been detected at one additional site in the north of the State, where it was growing on a road reserve adjacent to dry eucalypt forest.

Extra Tasmanian distribution: WA, SA, Qld, NSW, ACT, Vic.

Status: Sparingly naturalised

JUNCACEAE

***Juncus microcephalus* Kunth (smallhead rush)**

Selected specimens examined (3 of 4): S[outh] bank of North Esk River, Launceston, just upstream from Charles Street Bridge, ii.1981, *B. Robinson s.n.* (NSW 225669 [n.v.]); Bass

Highway, near Prospect, Launceston, 30.x.2000, *K. Graham s.n.* (HO 533225!); Bass Highway, near Prospect, Launceston (all TNM), 20.vii.2005, *M.L. Baker 1588*, (HO!).

Notes: This tufted perennial is known in Tasmania from two locations in the Launceston area. Curtis and Morris (1994) described its distribution and habitat as “local, recorded from marshes in two localities in the North West”. However, there is no evidence to support this. It was more recently collected from near Prospect (Launceston) where it is locally abundant and persistent on a highway verge covering an area of approx. 30 × 5 m.

Extra Tasmanian distribution: WA, Qld, NSW, Vic.

Status: Sparingly naturalised

LILIACEAE

Astroemeria aurea Graham (Peruvian lily)

Specimens examined: Waratah Cemetery (TCH), 2.ii.2001, *A.M. Buchanan 15838* (HO!); 15 m from corner of Huon Road and Ridgeway Road (TSE), 4.i.2004, *M.F. Duretto 1672* (HO!); Haldane Reserve, Lenah Valley (TSE), 2.iii.2011, *M. Wapstra 1232* (HO!); Old town of Guildford (TCH), 2.ii.2014, *M. Wapstra 1814* (HO!).

Notes: This tuberous perennial is commonly cultivated as a garden plant in Tasmania. It appears to be naturalised in scattered localities where it forms small, localised patches. One record notes that it is naturalising in a paddock but does not indicate the extent of the population.

Extra Tasmanian distribution: NSW, Vic.

Status: Sparingly naturalised

Scilla peruviana L. (Cuban lily)

Selected specimens examined (5 of 8): Snake Island, N end. D'Entrecasteaux Channel (TSE), 18.xi.1984, *K. Harris s.n.* (HO 96989!); Don Heads. Between road and lagoon, N of Don (FLI), 19.x.1986, *D.I. Morris 8649* (HO!); Mersey Bluff, Devonport (FLI), 31.x.2002, *B. Nuttall s.n.* (HO 520297!); Mersey Lighthouse, Mersey Bluff (FLI), 22.ix.2005, *M.L. Baker 1617* (HO!); Railton - cleared end of Dulverton Hill Road (TNS), 22.xi.2012, *M. Wapstra 1417* (HO!).

Notes: This tufted perennial herb is cultivated in Tasmania and is known from several widely separated but localised populations. Naturalised populations are most likely garden escapes or plants persisting from abandoned gardens. It is most suited to dry coastal habitats and has been recorded forming large colonies consisting of hundreds of plants.

Extra Tasmanian distribution: SA

Status: Sparingly naturalised

POACEAE

Aira cupaniana Guss. (silvery hairgrass)

Specimens examined: Hobart, xii.1923, *A.H.S. Lucas s.n.* (NSW 551107 [n.v.]); Launceston (all TSE), 14.xi.1963, *E.J. McBarron 8480*, (NSW [n.v.]).

Notes: This annual grass is known in Tasmania from two widely separated populations collected more than 50 years ago. Notes accompanying the latest collection indicate that it grew in wasteland in the city of Launceston. The limited material and associated notes make it difficult to accurately assign a naturalised status. It is likely to have been overlooked due to its similarity to other naturalised species in the genus.

Extra Tasmanian distribution: WA, SA, Qld, NSW, ACT, Vic.

Status: Doubtfully naturalised

Avellinia michelii (Savi) Parl. (avellinia)

Specimens examined: ‘Tin Dish Lagoon’, Maclains Plain, Campbell Town, 10.xi.1998, *J.A. Smith s.n.* (HO 505175!); Tin Dish (all TNM), 10.xi.1998, *J.A. Smith s.n.* (HO 504252!).

Notes: This small annual grass is known in Tasmania from two specimens that appear to be duplicates of each other. The plants were collected from the outer edge of a wetland in a *Selleria radicans* herbfield surrounded by native grassland. There are no further details regarding the population. The limited material and associated collecting notes raise doubt over its naturalised status.

Extra Tasmanian distribution: WA, SA, Vic.

Status: Doubtfully naturalised

Calamagrostis epigejos (L.) Roth (wood smallreed)

Selected specimens examined (2 of 5): Tanners Creek, Arthur Highway, vi.1973, *W.R. Watson s.n.* (HO 568832!); Tanners Creek, between Forcett and Copping, Arthur Highway (all TSE), 1.iii.1977, *D.I. Morris s.n.* (HO 25222!).

Notes: This large perennial grass is known in Tasmania from several collections from a roadside ditch on the Arthur Highway in the southeast of the State. The origin of the species here is unknown. It is believed to have been deliberately eradicated and recent surveys have failed to re-find it.

Extra Tasmanian distribution: None

Status: Previously naturalised

***Dichanthium sericeum* (R.Br.) A.Camus subsp. *sericeum* (silky bluegrass)**

Selected specimens examined (1 of 4): Tasman Highway, 2 km N of Sorell (TSE), 31.i.1982, *D.I. Morris 8246* (HO!).

Notes: This erect perennial grass is known in Tasmania from a single specimen (with several duplicates) from Sorell in the southeast of the State. Details accompanying the specimen indicate that the population consisted of approx. 20 plants. It has not been recorded since.

Extra Tasmanian distribution: WA (native), NT (native), SA (native), Qld (native), NSW (native), ACT (native), Vic. (native)

Status: Not naturalised

***Digitaria ciliaris* (Retz.) Koeler (crabgrass)**

Specimens examined: Hobart, v.1895, *L. Rodway 6* (HO!); Hobart (all TSE), 6.vi.1895, *L. Rodway 6* (HO!).

Notes: This annual grass is known in Tasmania from two specimens from Hobart, collected more than 120 years ago. There are no notes indicating the plant's status at these sites, nor any evidence that it became naturalised in Tasmania.

Extra Tasmanian distribution: WA, NT, SA, Qld, NSW, LHI, NI, ACT

Status: Not naturalised

***Digitaria ternata* (Hochst. Ex A.Rich.) Stapf (fingergrass)**

Specimens examined: Nubeena, 6.v.1982, [collector unknown] Ex Tasmanian Department of Agriculture Herbarium (HO 568826!); Near Nubeena (all TSE), 6.v.1982, *W.R. Watson s.n.* (HO 51390!).

Notes: This tufted annual grass is known in Tasmania from a single collection. Curtis and Morris (1994) described the distribution and habitat as "recorded from a roadside on the Tasman Peninsula", presumably based on this specimen. There is no evidence that it became naturalised in Tasmania.

Extra Tasmanian distribution: NSW

Status: Not naturalised

***Echinochloa oryzoides* (Ard.) Fritsch (rice barnyardgrass)**

Specimen examined: Triabunna (TSE), 2.ii.1995, *D.I. Morris 86552* (HO!).

Notes: This tall annual grass is known in Tasmania from a single specimen from a population of 30–40 plants growing along a roadside ditch on the State's east

coast. There is no evidence that it became naturalised in Tasmania.

Extra Tasmanian distribution: WA, Qld (doubtfully naturalised), NSW

Status: Not naturalised

***Eleusine indica* (L.) Gaertn. (crowsfoot grass)**

Specimens examined: Bridport, top side of Westwood Street, 19.iii.1997, *M.P. Cameron s.n.* (HO 320736!); Parkers Ford Road, Port Sorell (all FLI), 8.ii.2012, *P. Collier 5428* (HO!).

Notes: This small annual grass is known in Tasmania from two specimens from roadside verges in the north of the State. The collections suggest that it is a recent arrival to the State, although the source of the introduction is unknown. The species is locally persistent at Port Sorell (*P. Collier pers. comm.*) whereas its persistence at Bridport is unknown.

Extra Tasmanian distribution: WA, Col, ChI, NT, SA, Qld, NSW, LHI, NI, ACT, Vic.

Status: Sparingly naturalised

***Eleusine tristachya* (Lam.) Lam. (goosegrass)**

Selected specimens examined (5 of 13): Outside of the Botanical Gardens [Hobart] (TSE), 17.xi.1979, *T. Shea s.n.* (HO 32149!); Hobart. University of Tasmania, football oval (TSE), 14.iii.1981, *R.J. Wilson s.n.* (HO 540714!); Midland Highway, N. of Perth (TNM), 12.iv.2013, *M. Wapstra 1602* (HO!); Lyell Highway, N of Dawson Road (Dunrobin) turn-off (TSE), 9.vi.2013, *M. Wapstra 1660* (HO!); Brooker Highway, showgrounds roundabout, median strip to north (TSE), 14.iv.2014, *M. Wapstra 1853* (HO!).

Notes: This prostrate perennial grass is known in Tasmania from numerous locations in the greater Hobart area, extending through to the Coal River Valley, the lower to middle Derwent Valley, and along the Midland Highway as far north as Breadalbane, near Launceston in the State's north. Since the first collections, in 1979 from outside the Royal Tasmanian Botanical Garden, and in 1981 from Sandy Bay, it has become a widespread weed of roadsides and grasslands and is predicted to continue to increase its range throughout the State.

Extra Tasmanian distribution: SA, Qld, NSW, ACT, Vic.

Status: Naturalised

***Eragrostis curvula* (Schrad.) Nees (African lovegrass)**

Selected specimens examined (4 of 16): Woodbury (cult.) (TNM), i.1922, *R.A. Black s.n.* (HO 121170!); Franklin, picnic area (TSR), 8.i.1967, *J.E.S. Townrow s.n.* (HO 92647!); Hobart

International Airport (TSE), 1.iv.2008, *A. Crane s.n.* (HO 547462!); Hobart, Flagstaff Gully link road, near North Warrane Sports Ground (TSE), 14.iii.2015, *M.L. Baker 3001* (HO!).

Notes: This tussock-forming perennial grass is known in Tasmania from numerous locations in the State where it is a widespread and common weed of roadsides. It was first recorded from a pasture trial conducted in 1922, although it is unknown if it was ever actively promoted as a pasture species. At the time of publication of Curtis and Morris (1994), it was only known to be naturalised at Franklin, on grassy areas adjacent to the Huon River. Recent targeted surveys have revealed large increases in its range in the State and it is now regarded as common and widespread (NBES 2016). It is predicted to continue to increase its range even though it has been, and continues to be, actively targeted for eradication. See Figure 8.

Extra Tasmanian distribution: WA, SA, Qld, NSW, ACT, Vic.

Status: Naturalised

***Eragrostis tenuifolia* (A.Rich.) Hochst ex Steud. (elastic grass)**

Specimens examined: 30 m west of Llanherne turnoff, Cambridge, *D. Reece s.n.* (HO 128440!); Just before Seven Mile Beach turnoff on Cambridge Road, 14.iv.1972, *D. Reece s.n.* (HO 128439!); Tasman Highway, immediately west of Orford, 25.iii.2016, *J. Quarmby s.n.* (HO 585623!); Orford, between highway and Prosser River, c. 300 m W of Charles Street intersection, 7.iii.2018, *M.L. Baker 3462* (HO!) (all TSE).

Notes: This perennial grass is known in Tasmania from two disjunct roadside populations in the southeast of the State. The location of the most recent collection (Orford) was surveyed in March 2018 and several plants were found along a short section of roadside verge with other more common naturalised grasses, indicating that the taxon is locally established.

Extra Tasmanian distribution: WA, NT, Qld, NSW

Status: Sparingly naturalised

***Glyceria plicata* (Fri.) Fri. (plicate sweetgrass)**

Specimen examined: Don Heads, Devonport (FLI), 20.xi.1986, *D.I. Morris 86123* (HO!).

Notes: This rhizomatous perennial grass is known in Tasmania from a single specimen from a farm dam overflow in the north of the State. Its similarity to the more widespread *G. declinata* Bréb. may mean that it has been overlooked. On the basis of the single collection, it is difficult to assign a naturalised

status but its perennial nature suggests it could have persisted at the site.

Extra Tasmanian distribution: Vic. (as *Glyceria notata* Chevall.)

Status: Doubtfully naturalised

***Holcus mollis* L. (creeping fog)**

Specimens examined: Tewkesbury Potato Research Farm (TNS), vi.1974, *D.I. Morris s.n.* (HO 103698!); Barcoo Road, S of Montagu (KIN), 25.ii.2009, *A.M. Buchanan 17092* (HO!).

Notes: This perennial grass is known in Tasmania from two collections from the northwest of the State. The most recent record was from a weedy roadside. There are no accompanying notes to indicate its extent at either location. The species may have been overlooked in Tasmania due to its similarity with the widespread and common *Holcus lanatus* L.

Extra Tasmanian distribution: NSW, Vic.

Status: Doubtfully naturalised

***Hordeum hystrix* Roth (velvet sea barleygrass)**

Selected specimens examined (4 of 12): West Lagoon, Little Hampton (TNM), 2.ii.1952, *H.N. Barber s.n.* (HO 27918!); Big Green Island (FLI), 11.xii.1975, *J.S. Whinray 598* (AD [n.v.]); Cambridge Sports Ground (TSE), 21.xi.1973, *D.I. Morris s.n.* (HO 35213!); Nant Lane, N Bothwell (between Fordell Creek and River Clyde) (TSE), 24.i.2014, *M. Wapstra 1807* (HO!).

Notes: This erect annual grass is known in Tasmania from three widely separated populations. It appears to be well-established on the islands of the Furneaux Group and at several localities in the dry agricultural region of the Midlands. Curtis and Morris (1994) stated that it is "occasional in pastures in the Midlands". The most recent collection was from grassland in a drainage depression where it formed dense patches.

Extra Tasmanian distribution: WA, NT (doubtfully naturalised), SA, Qld, NSW, ACT (formerly naturalised), Vic.

Status: Naturalised

***Molinieriella minuta* (L.) Rouy (small hairgrass)**

Specimen examined: Hoggs Ford Road, Campbell Town (TNM), 6.x.1995, *J.A. Smith s.n.* (HO 316988!).

Notes: This small annual grass is known in Tasmania from a single collection from a freshwater wetland in the State's Midlands region. Collection notes do not give any indication of its status at the site. Based on this scant



Figure 8. *Eragrostis curvula* was previously known to be sparingly naturalised in Tasmania. Recent surveys have shown the species to be a widespread and common naturalised weed of roadsides throughout the State.

information, it cannot be considered naturalised but its status should remain uncertain pending further surveys.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Doubtfully naturalised

***Panicum capillare* L (= *Panicum capillare* L. var. *capillare* & *P. capillare* L. var. *occidentale* Rydb.) (witchgrass)**

Specimens examined: Gunns Plains (TNS), *Colbourne* (ex herb. *Rodway*) (HO 27821!); NW Coast, North West (TNS), iii.1956, *I. Murfet s.n.* (HO 27820!); Latrobe Cemetery (FLI), 1.iv.2003, *A.M. Buchanan 160001* (HO!).

Notes: This annual grass is known in Tasmania from three collections but there is insufficient information to justify assigning a naturalised status. Investigation of the Latrobe Cemetery site could provide useful information in reviewing its status in Tasmania.

Extra Tasmanian distribution: WA, SA, NSW, Vic.

Status: Not naturalised

***Panicum gilvum* Lauenert (sweet panic)**

Specimens examined: Approach to Bailey Bridge, Prince of Wales Bay (TSE), 9.vi.1976, *D.I. Morris s.n.* (HO 128471! & HO 55049!); Symmons Plains, highway just S of raceway entrance (TNM), 14.iii.2008, *M.L. Baker 1875* (HO 547458!).

Notes: This annual grass is known in Tasmania from two specimens collected from widely separated locations, both from roadside verges. The most recent collection was from a population consisting of several plants. The scarcity of collecting information associated with the specimens, and the infrequent collections, means there is some doubt regarding its status in Tasmania. See Figure 9.

Extra Tasmanian distribution: NT, Qld (doubtfully naturalised), NSW, ACT, Vic.

Status: Doubtfully naturalised

***Setaria pumila* (Poir.) Roem. & Schultz. subsp. *pumila* (pale pigeon-grass)**

Specimen examined: Hill Street, West Hobart (TSE), 10.iii.2004, *M.L. Baker 396* (HO!).

Notes: This tufted annual grass is known in Tasmania from a single specimen from an amenity street-tree planting in the south of the State. All plants were removed and destroyed and a survey of surrounding area did not reveal any additional individuals. For a discussion of this occurrence see Baker (2005).

Extra Tasmanian distribution: WA, SA, Qld, ACT, Vic.

Status: Not naturalised

***Sorghum bicolor* (L.) Moench (sorghum)**

Specimens examined: Margate tip, 10.vi.2004, *M.L. Baker 450* (HO!); Risdon Vale, Risdon Vale Creek (all TSE), 5.iv.2007, *M.L. Baker 1798* (HO!).

Notes: This robust annual grass, cultivated in tropical and subtropical regions of the world for its edible grain, is known in Tasmania from only three plants recorded in the south of the State. Two were growing in a weed-infested urban creek bank and were thought to have arisen from discarded bird cage refuse. The other was a single plant growing at a municipal tip. The small number of plants and its tropical growing requirements suggest that it only exists as a transient weed in Tasmania.

Extra Tasmanian distribution: WA, Col, Chl, NT, SA, Qld, NSW, ACT (doubtfully naturalised)

Status: Not naturalised

***Sorghum halepense* (L.) Pers. (Johnson grass)**

Selected specimens examined (5 of 7): Lindisfarne (TSE), 29.i.1920, *J.E. Phillip s.n.* (MEL2139750 [n.v.]); Tasmania (cult.) (TNM), ii.1921, *R.A. Black s.n.* (HO 105340!); Campbell Town (TNM), 7.iii.1921, *R.A. Black s.n.* (MEL2139751 [n.v.]); Queens Domain, Hobart, Edge of top carpark (TSE), 20.ii.2001, *P. Bramich s.n.* (HO 512572!); Margate Tip (TSE), 10.vi.2004, *M. Baker 449* (HO!).

Notes: This robust perennial grass is known in Tasmania from a small number of specimens. The earlier records are thought to be from plants cultivated in pasture trials. The Queens Domain collections are thought to have arisen from bird seed that was scattered in the area.

Extra Tasmanian distribution: WA, SA, Qld, NSW, ACT, Vic.

Status: Doubtfully naturalised

Discussion

Based on this study, the number of naturalised taxa in Tasmania recognised in the 2016 edition of the Tasmanian Vascular Plant Census (de Salas & Baker 2016) should be reduced by 75 because 37 taxa previously considered to be naturalised are better regarded as never having been naturalised in Tasmania. Based on the available evidence, a further 38 taxa are best regarded as doubtfully naturalised.

Of the 150 taxa listed in de Salas and Baker (2016) as *sparingly naturalised*, eight were deemed to be *status uncertain* (Table 1). These species will be the topic



Figure 9. *Panicum gilvum* is known in Tasmania from two specimens collected from widely separated locations, both from roadside verges. The most recent collection was from a population consisting of several plants. The scarcity of collecting information associated with the specimens and the infrequent collections means there is some doubt regarding its status in Tasmania.

of a future paper (de Salas *et al.* in prep.) and are not discussed further here.

Thirty-seven taxa were determined to be *not naturalised*. These are characterised by having been introduced to Tasmania but having no evidence to suggest that they were ever truly naturalised. The clear majority are annual or short-lived perennials that have been recorded on single occasions (e.g. *Hyoscyamus albus* (Figure 5) and *Ranunculus arvensis*). Several taxa have only been recorded as collections made from cultivated plants (e.g. *Hedysarum coronarium* (Figure 5) and *Taraxacum kok-saghyz* (Figure 2)). Eleven of the taxa were last collected more than 50 years ago and, four had not been collected for more than 100 years. One of these, *Veronica peregrina*, was collected 169 years ago. *Hibiscus trionum* is the most often collected and widespread of this group. It is associated with cultivated ground, such as urban vegetable gardens. However, it does not appear to persist at these sites and cannot be considered even sparingly naturalised in Tasmania. Nine of the taxa are not recorded as naturalised anywhere in Australia. However, several are known to be widely naturalised throughout the Australian mainland (e.g. *Digitaria ciliaris*, *Carrichtera annua* and *Sorghum bicolor*) and could conceivably become so in Tasmania.

Six taxa were determined to be *previously naturalised*. These are characterised as taxa that were introduced and naturalised to some degree in the past, or highly likely to have become naturalised, but which have been subsequently eradicated. Each was recorded either as small, single populations, or from a small number of very localised populations. Several of the populations originated from ornamental garden plantings (e.g. *Hakea laurina* and *Cynara cardunculus* subsp. *flavescens*). The remainder are considered to be agricultural weeds and were most likely introduced to Tasmania as contaminants of crop seed, livestock feed or some other agricultural vector. *Onopordum acaulon* and *Cuscuta suaveolens* (Figure 4) are recognised as serious weeds elsewhere in the world (Parsons & Cuthbertson 2001) and are examples of species that were found growing in single localised populations. These species were deemed to be potentially serious weed threats and therefore targeted for eradication. Whilst there is no evidence that these taxa would have become naturalised, experience from elsewhere in Australia and

overseas (Parsons & Cuthbertson 2001) suggests that they would readily naturalise in Tasmania if no steps were taken to control them.

Thirty-eight taxa were determined to be *doubtfully naturalised*. These are characterised as being introduced species known from a small number of collections with scant notes detailing their habitat and population extent. Some are taxa that could be easily mistaken for more common related species (e.g. *Raphanus maritimus*, *Panicum gilvum* (Figure 9) and *Holcus mollis*) and could therefore be more common and widespread than evidence suggests. Others may have been overlooked due to their small size (e.g. *Lysimachia minima*) or because they occupy under-surveyed habitats such as wetlands (e.g. *Utricularia gibba*). The taxa in this group are commonly associated with a lack of contextual collecting information accompanying the records, and as a result there is uncertainty surrounding their naturalised status. *Brassica oleracea* (Figure 3) is a case in point. Twelve collections of this species are known, with all collected over a period spanning nearly 100 years from widely disjunct locations. However, only a single specimen is annotated in terms of its status (cultivated). All other specimens lack notes regarding population, habitat and status details. Thus, the source of the plants, and whether they appeared to be in self-sustaining populations, is unknown.

Thirty-nine taxa were retained as *sparingly naturalised*. These are known from only a small number of collections from non-cultivated plants. They are often from widely separated but localised populations, and represented by specimens collected many years apart. They show

Table 1. Taxa previously recorded as sparingly naturalised but now regarded as status uncertain.

Species	Common name
<i>Sigesbeckia orientalis</i> L.	Indian weed
<i>Atriplex semibaccata</i> R.Br.	berry saltbush
<i>Lawrenzia squamata</i> Nees	thorny saltmallow
<i>Passiflora cinnabarina</i> Lindl.	red passionflower
<i>Veronica notabilis</i> F.Muell. ex Benth.	forest speedwell
<i>Cladium procerum</i> S.T.Blake	leafy twigsedge
<i>Cyperus sanguinolentus</i> Vahl.	dark twigsedge
<i>Amphibromus fluitans</i> Kirk	floating swampgrass

evidence of persistence but no evidence of spread or noteworthy impacts on ecosystems or agriculture.

Twenty-two taxa were determined to be *naturalised*. Many of these are characterised as being widely cultivated ornamental plants that have actively spread from plantings into adjacent amenity and recreational areas, or into remnant bushland adjacent to suburban and peri-urban locations (e.g. *Acacia baileyana*, *Kniphofia uvaria* (Figure 7) and *Senecio angulatus*). Others are accidental introductions that have undergone recent and significant increases in their distribution across the state (e.g. *Eragrostis curvula* (Figure 8) and *Eleusine tristachya*) and will most likely remain a permanent part of the flora of Tasmania.

The species that are recorded infrequently and regarded as doubtfully or sparingly naturalised may, with active searching, prove to be more widespread and possibly meet the definitions of being fully naturalised. Other taxa that resemble more common and widespread species may have been overlooked or misidentified, and therefore the records may misrepresent their status. It is also possible that many of the species are very restricted in their distributions and are uncommon, and for that reason they go undetected for long periods of time. Schmidt-Lebuhn *et al.* (2013) examined non-geographic collecting bias in the daisy family in Australia and showed that there exist biases against collecting introduced plants, species with spines and unattractive flower colours, as well as very small plants. Botanists in general are more interested in recording and collecting natives, whilst species such as succulents, spiny plants and those that are too large to fit on a single herbarium sheet are more likely to be ignored due to their inherent collecting and processing difficulties.

Doubtfully naturalised and sparingly naturalised taxa are good candidates for follow-up surveys, especially where accurate and descriptive locality notes are to be included with the specimen, allowing for a more accurate assessments of their status. If follow-up surveys find taxa to be present, they may serve as good candidates for localised eradication; history has shown that, if left, there is a high chance that they will become naturalised. An appraisal by Rozefelds and MacKenzie (2005) of the earliest catalogues of Tasmanian naturalised plant species (Spicer 1878a; 1878b) showed that, of the 50 species identified as being present but

not yet naturalised by the 1870s, more than 95% of them were naturalised by 2005.

The authors would be pleased to receive specimens or information relevant to the listed species as new information may lead to a better understanding of their status in Tasmania.

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