Jumping the Garden Fence

Invasive garden plants in Australia and their environmental and agricultural impacts

A CSIRO report for WWF-Australia by

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Over 27,000 known alien plant species have been introduced to Australia. Of these, 2,779 or about 10% are now established in Australia's environment. This number is rising by about 10 species per year, and the rate is increasing.

In natural ecosystems, invasive plants impact negatively on the biodiversity of many Australian vegetation types ranging from tropical wetlands to arid riverine vegetation. Many infest vast areas of the continent. For example, rubbervine (*Cryptostegia grandiflora*), an escaped garden plant, has been recorded across 34.6 million hectares, or 20% of Queensland alone.Weed competition is the primary cause for the extinction of at least 4 native plant species, and another 57 are currently threatened or will become so through competition of weeds. The impact of weed competition is increasing as a major threat to the survival of many native plant species.

In agricultural ecosystems, weed impacts are estimated to cost Australia at least $4 billion per year. Many escaped garden plants contribute substantially to this cost. This includes Paterson's curse (*Echium plantagineum*) which costs agriculture $30 million per year, and Lippia (*Phyla canescens*) which costs the grazing industry an estimated $38 million per year.

Most of these weeds were introduced for ornamental horticulture

The gardening industry is by far the largest importer of introduced plant species, being the source for the introduction of 25,360 or 94% of new plant species into Australia. Garden plant introductions are also the dominant source of new naturalised plants and weeds in Australia. Of the 2,779 introduced plant species now known to be established in the Australian environment, 1,831 (or 66%) are escaped garden plant species.

They also make up two-thirds of the introduced plant species naturalised over the 25 years to 1995. Studies suggest that introduced garden plants will comprise an even greater portion of the total of future naturalised species.

Of great concern is that many serious environmental and agricultural weeds continue to be imported into Australia. These imports include Mexican feathergrass (*Nassella tenuissima*), a close relative of serrated tussock; it was introduced as an ornamental tussock grass in 1996 and had naturalized by 2004. Mexican feathergrass has an estimated economic impact on agriculture of $39m. Another potentially significant grazing weed Bear-skin fescue (*Festuca gautieri*) was imported in 2003 and by November 2004 was being advertised for sale.

Most environmental and agricultural weeds are invasive garden plants

Invasive garden plant species make up the vast majority of the 1,953 combined agricultural, noxious and natural ecosystem weeds, comprising 1,366 (70%) of the total. They are by far the largest source of agricultural and environmental weeds, comprising 69% of the 954 listed agricultural weeds and 72% of the 1,765 listed environmental weeds.

Invasive garden plants also comprise over half (56%) of the 36 land and aquatic plants in the list of the *World's Worst Invasive Alien Species.*

Environment: 28 (57%) of the 49 naturalised non-native species that impact on rare or threatened native plant species are invasive garden plants.

Agriculture: Invasive garden plants impact negatively on cropping systems include Tumble pigweed, Capeweed, Saffron thistle and Bindweed.

Of the 48 weeds identified in the report, *Weeds of Significance to the Grazing Industries of Australia*, as of greatest significance to Australian grazing industries, over 40% are invasive garden plants, of which four are still are available for sale (Creeping lantana, Lantana, Mother of millions and St Johns wort). Of the 24 emerging weeds identified as having the potential to become highly significant for grazing industries, over half (54%) are invasive garden plants, of which a third (8 or 33%) remain available for sale. These weeds include Hawkweeds, Neem, Sisal hemp, Lincoln weed and Yellow oleander.

Many invasive garden plant species that impact on the environment and agriculture continue to be available for sale

The continuing sale, and hence wide distribution, of invasive and potentially invasive garden plants in Australia presents a significant risk to the agricultural industry and Australia's environment. This risk includes:

- 393 (54%) of 720 naturalised invasive garden plants
- 72 (40%) of the 178 invasive garden plants declared or noxious by one or more Australian States or Territories
- 9 (25%) of the 36 invasive plant species on the list of the100 World's Worst Invasive Alien Species
- 5 (25%) of the 20 Weeds of National Significance (WONS)
- 4 (14%) of the 28 species on the Alert List of Environmental Weeds (excluding 2 non-naturalised species, which are also available for sale)
- 10 (20%) of the 49 weed species known to be impacting on Rare or Threatened Australian Plants (ROTAP)
- 4 (8%) of the 48 weeds of greatest significance to the grazing industries
- 8 (33%) of the 24 emerging weeds that are potential problems to the grazing industries.

Of concern is the large number of declared invasive garden plants that are primarily agricultural or ruderal weeds that remain available for sale. The most affected states and territories are Queensland (50.0%), Western Australia (33.3%) followed by Victoria (26.3%), South Australia (25.0%) and Tasmania (25.0%).

The ten most serious invasive plants being sold currently by Australian nurseries are Asparagus fern, Broom, Fountain grass, Gazania, Glory lily, Hybrid mother of millions, Japanese honeysuckle, Pepper tree, Periwinkle and Sweet pittosporum.

In NSW, the ten most serious invasive garden plants available for sale are Banana passion fruit, Broom, Cat's claw creeper, Glory lily, Holly leaved senecio, Hybrid mother of millions, Lippia, Madiera vine, Mother of millions, and Yerba de hicotea. For Queensland, the ten are Coreopsis, Glory lily, Guava, Japanese honeysuckle, Mickey Mouse plant, Murraya, Parrot's feather, Pink periwinkle, Taro and Yellow allamanda. For South Australia, the ten are Aleppo pine, Desert ash, Fountain grass, Gazania, Golden wreath wattle, Kikuyu grass, Olive, Periwinkle, Topped lavender, and Weeping willow. For Tasmania, the ten are Asparagus fern, Blue psoralea, Broom, Cape Leeuwin wattle, Himalayan honeysuckle, Holly, Looking glass bush, Radiata pine, Sweet pittosporum, and Tree heath. For Victoria, the ten are African lovegrass, Asparagus fern, Gazania, Horsetails, Mexican feather grass, Oxalis, Pepper tree, Periwinkle, Prickly pear, and Spanish heath. For Western Australia, the ten are Arum lily, Black flag, Broadleaf pepper

tree, Coastal tea tree, Freesia, Spotted gum, Sweet pittosporum, Sydney golden wattle, Watsonia, and Weeping white broom. For the Australian Capital Territory, the ten are Black locust, Broom (*Cytisus* species), Broom (*Genista* species), Cotoneaster, Firethorn, Japanese honeysuckle, Lombardy poplar, Olive, Radiata pine, and White poplar. For the Top End of the Northern territory, the ten are African tulip, Candle bush, Clumping fishtail palm, Golden shower, Neem, Poinciana, Rubbervine, Snakeweeds, White teak, and Yellow bells. For arid Northern Territory, the ten are American cotton palm, Couch grass, Fountain grass, Himalayan raintree, Hybrid mother of millions, Lead tree, Mayne's pest, Pepper tree, Umbrella sedge, and White cedar.

Many other major invasive plants (both introduced and native to Australia) are available for sale by nurseries in different States or Territories and are described in the report. This includes plants that are recommended for national eradication, or those that are declared noxious and been eradicated from only one State or one region of a State.

Many of the invasive garden plants likely to become future weeds are in private or public gardens, and some are already naturalised in Australia. Examples include Mexican feathergrass, a close relative of Serrated tussock, and Spanish thistle, both of which have been detected for sale recently in several nurseries in southern Australia. The former is now naturalised in NSW. Their combined cost to Australian agriculture if they become invasive is estimated to be $83 million.

It is of concern that some species that are declared noxious (mainly for their impact on agriculture) or known to be impacting agricultural ecosystems in some way are still available for sale from Australian nurseries. For example, over a third of the invasive garden plants declared noxious in Western Australia (40.4%) and Queensland (35.1%) are available for sale in other jurisdictions. In some cases weeds declared noxious and prohibited from sale in one state may not have the same status in another state. But while plants can be freely moved interstate, such a situation becomes untenable nationally. For instance, *Lantana camara* is both declared noxious and prohibited from sale in Queensland but in neighbouring northern NSW it is still for sale by some nurseries.

The report shows that states and territories generally have low rates of prohibiting for sale those invasive and potentially invasive garden plants naturalised in their respective jurisdiction. ACT is far the weakest jurisdiction with 0.0% followed by Western Australia with 9.9%, Victoria with 11.2%, and Tasmania with 14.5%. The best performing state and territory was the Northern Territory, which prohibited the sale of about 4 out of every 10 (41.3%) of the invasive garden plant species naturalised in its jurisdiction, followed by Queensland with 22.2%.

The results presented clearly show that a number of invasive garden plants that are known to impact directly on native plants and natural ecosystems are currently available for sale from Australian nurseries. These results have serious implications for the biodiversity status of native plants and natural ecosystems in Australia. The availability for sale of those invasive garden plants is especially dire for those for which an eradication program has been recommended. Money spent on an eradication program will be wasted if the same plants are still available for sale and potentially able to re-invade managed areas.

Recommendations for the future

Seven recommendations are proposed to lessen the overall impact of invasive plant species deliberately introduced for horticulture and currently available for sale.

The first four recommendations arise directly from this report. They are:

Recommendation 1. At least 80 species that are currently available for sale should be prohibited nationally from sale as an urgent priority. These include the species that are Weeds Of National Significance, species on the Alert List, the species that are declared or noxious, and the 10 species that impact on ROTAP species.

Recommendation 2. The ten most important species available for sale currently in Australia should be prohibited from sale nationally from July 1, 2005.

Recomendation 3. Many other invasive garden plants nominated by individual states, territories or regions should be added progressively to the list of weeds prohibited from sale nationally.

Recommendation 4. Amendments or new regulations to the current *Environment Protection and Biodiversity Conservation Act* (Federal) should be considered, to allow national prohibition of the sale of specific invasive garden plants known to be major weeds and to ensure uniformity between all States and Territories.

The following three pro-active recommendations will further reduce the future impacts of invasive garden plants and promote responsibility shared between government, weed managers and the wider Australian community.

Recommendation 5. Voluntary associations between nursery groups and weed managers at the local and regional levels should be fostered to increase the number and effectiveness of future associations.

Recommendation 6. Bushland areas adjoining peri-urban settlements around Australian cities should be actively and regularly searched by experienced botanists and trained community volunteers to detect and eradicate newly naturalised plant species that have already 'jumped the garden fence'.

Recommendation 7. Increased resources should be provided to advance the awareness of the Australian community to the negative impacts that many established and emerging weeds are having on natural and agricultural ecosystems and will have in the future, focusing especially on those already growing in Australian private and public gardens.

If the number of invasive garden plants known to be naturalised and available for sale can be decreased, then the number of future weeds impacting Australian ecosystems, both natural and agricultural, should eventually also be reduced.

Chapter 1. Introduction

Purpose

To outline the role and means by which ornamental plants impact on natural and agricultural ecosystems and document invasive plants recently and currently available for sale by the nursery industry nationally and by state or territory.

Context and key issues

About 2780 plants are now established in the wild in Australia (Virtue *et al.* 2004) and the number is increasing by about 10 species per year (Groves *et al.* 1997). Two thirds of the species in the introduced flora that have naturalised over the last 25 years have been deliberately introduced for ornamental horticulture (Groves *et al.* 1997). This report aims to characterise the weed impacts of species introduced as ornamentals and suggest ways in which negative impacts may be minimised in future.

Key definitions of terms and categories

Naturalised species: species from outside the region in question that can maintain populations in the wild without cultivation.

Invasive plants: naturalised species that are spreading.

Weed: species that adversely affect biodiversity, the economy or society.

Environmental weed: This term refers to those naturalised plant species that have invaded areas of native vegetation. The species are presumed to impact negatively on native species diversity or ecosystem function. Environmental weeds are usually non-native species, although native plant species that are invasive beyond their indigenous range are also included.

Noxious plant: A formally declared weed. The declaration of 'noxiousness' always implies the need for active management to reduce the negative impact of the particular plant species on human activities.

Weeds Of National Significance (WONS): A list of twenty species, nominated under the National Weeds Strategy of 1997, which require a national (trans-boundary) effort to tackle their management. These weeds affect extensive land use systems such as conservation areas and grazing systems, rather than cropping systems.

Overview

The primary focus of this report is to determine the numbers and status of naturalised invasive plants that are still available for sale by nurseries.

We discuss firstly the stages and pathways for invasion (Chapter 2) and the history of plant invasions in Australia (Chapter 3). Some of the impacts environmental weeds are known to be having on Australian biodiversity and agricultural ecosystems are presented in Chapter 4. Chapter 5 analyses the present situation in terms of invasive garden plants currently available for sale; it follows previous attempts of Roush *et al.* (1999) and of Randall (2001). In Chapter 6 we make some recommendations for the better management of plant imports and sales of deliberately introduced ornamental plants to reduce the number of future weeds.

Although this report tries to separate environmental and agricultural weeds (because the two groups of weeds are administered by different federal departments), a discussion stresses the point that the many species belong to both categories, as indeed can noxious plants and WONS and other invasive plant categories. There is some overlap between several of the weed categories.

Chapter 2. Stages and Pathways for Invasion

The invasion process

Although plant invasion is a continuous process, at least three stages can be identified:

1. The **introduction stage** commences with the arrival of a 'new' species to a region. Introduction may occur either accidentally, for instance as a contaminant of imported seed, or deliberately, for agriculture or for ornamental value or perhaps simply to remind settlers of 'home'. Some of the species thus introduced will spread from where they were planted and colonise their new environment by establishing permanently; many other introduced species will fail to reproduce and may disappear. Others, such as camellias and azaleas, may reproduce but never spread. An example of an invasive garden plant at the introduction stage is Bear-skin fescue, an ornamental tussock grass and known grazing and environmental weed, introduced into Australia in about 2003 (see Box 5 on pg 32).

2. Those plant species that reproduce naturally without cultivation are at the **naturalisation stage.** An example is Mexican feather grass, an ornamental tussock grass and known grazing and environmental weed, introduced into Australia in 1996 and which naturalised in 2004 (see Box 4 on pg 31).

3. In turn, some of the naturalised flora will spread widely and enter the **invasive stage.** When invasive plants interfere in some way with human activities they are termed **weeds** – a sub-group of invasive plants. Examples include Lippia, which is now a rapidly expanding grazing and environmental weed (see Box 3 on pg 30) and Patersons curse, which is a widespread grazing and environmental weed (see Box 2 on pg 29).

Transition rates through the stages

Quantitative studies on the transition from introduction to naturalisation are limited by a general lack of documentation of introduction dates, whereas records of plant naturalisations are recorded on dated herbarium specimens or printed in regional floras and are thus citable. Furthermore, the time from the introduction stage (cultivation of a species) to its naturalisation stage varies from less than 20 years to as many as 300+ years for some woody ornamentals. This variable period between introduction and naturalisation means that many species (especially long-lived woody plants) already introduced to Australia may yet naturalise and some may yet become invasive. Whilst dates of introduction are usually unknown for some of Australia's major weeds, information on their dates of naturalisation is always available; such data form the basis of most analyses of Australia's non-native flora (e.g. Groves *et al.* 2003).

As a rule of thumb, probably only about 10% of the introduced flora will ever become naturalised (Williamson & Fitter 1996). Of these, about 10%, i.e. roughly 1% of the introduced flora, will become weeds. This rate is higher, however, for plants introduced intentionally for agricultural and forestry purposes (Virtue *et al.* 2004).

Different categories of weeds

Environmental weeds (see definitions in previous chapter). Native species are becoming more significant as environmental weeds as Australian plants are used more widely both in horticulture and in re-vegetation projects (Groves 2001). Environmental weeds are distinguished

from other weeds by the ecosystem they affect but the same plant species may be invasive in both natural and agricultural ecosystems.

Alert List species: A subset of the environmental weed group includes species known to have distributions confined to particular regions of Australia and thus amenable to containment or even eradication. This subgroup has been published as an Alert List (DEH 2004) and the species are termed **Alert List species**. Some of these are introduced species that are yet to become naturalised.

Groves *et al.* (2003) identified a further subset of naturalised species that impact directly on ANZECC-rated **Rare Or Threatened Australian Plants (ROTAP species)**.

Noxious plant: The term applies throughout Australia, in that this category is enacted by legislation in each state or territory for particular invasive species. Not all noxious plants, however, are declared for every state or territory. For instance, an invasive plant species of the wet tropics may be declared noxious in Queensland, the Northern Territory and in northwest Western Australia, but not in the temperate southern states in which the species' risk of becoming invasive may be negligible. In some states, a plant may be declared noxious in parts of the state only. The declaration of 'noxiousness' always implies the need for active management to reduce the negative impact of the particular plant species on human activities. Historically, noxious species impact mainly on agricultural ecosystems although increasingly with time this distinction is no longer valid and many are impacting on natural ecosystems as well. Some noxious species even impact primarily on human health (e.g. Wall pellitory, *Parietaria judaica*).

WONS: To address Goal 2 of the *National Weeds Strategy* (Anon. 1999), some invasive plant species, with mostly widespread distributions in Australia, were accepted in a special category of Weeds Of National Significance (**WONS**). Ten of the 20 WONS species are weeds of horticultural origin, though 16 in total have been cultivated for ornamental horticulture. The technical criteria behind the establishment of this relatively new category are described in Virtue *et al.* (2002).

NAQS species: A further group of species (not necessarily yet naturalised in Australia, although some are) are targeted by the Australian Quarantine Inspection Service (AQIS) Northern Australia Quarantine Strategy and are termed **NAQS weed target species**.

Garden thugs: Randall (2001) listed naturalised species that he considered were particularly invasive garden plants, which collectively were termed **Garden thugs.** Randall's list aimed to assist gardeners to make more informed decisions about their proposed plantings and also to identify quickly (and hopefully remove) new weed threats in their region. This list highlighted the large proportion of naturalised species in Australia having horticultural origins (Randall 2001).

Numbers in the different categories

Australia has about 27,000 introduced plant species , about 2,779 of which are known to have naturalised (see Table 1) (Virtue *et al.* 2004). Within the naturalised flora, the total number regarded as weeds is highly subjective and, depending on the observer, ranges from all introduced species, to all naturalised species, to a subset of the latter. Somewhat more objectively, a total of 429 naturalised species are either declared noxious or else under some form of active control in Australia (Table 7 of Groves *et al.* 2003). Of Randall's 958 Garden thugs, 170 had been declared noxious by 1999 (Randall 2001). There are 28 Alert List species and 20 WONS (Fig. 1). A group of a further 41 species is targeted by NAQS, some of which are naturalised.

In addition, Groves *et al.* (2003) identified a sub-group of 34 species that impacted on natural ecosystems and a further 27 on agricultural ecosystems, for both of which a national containment or eradication program seemed appropriate and was recommended.

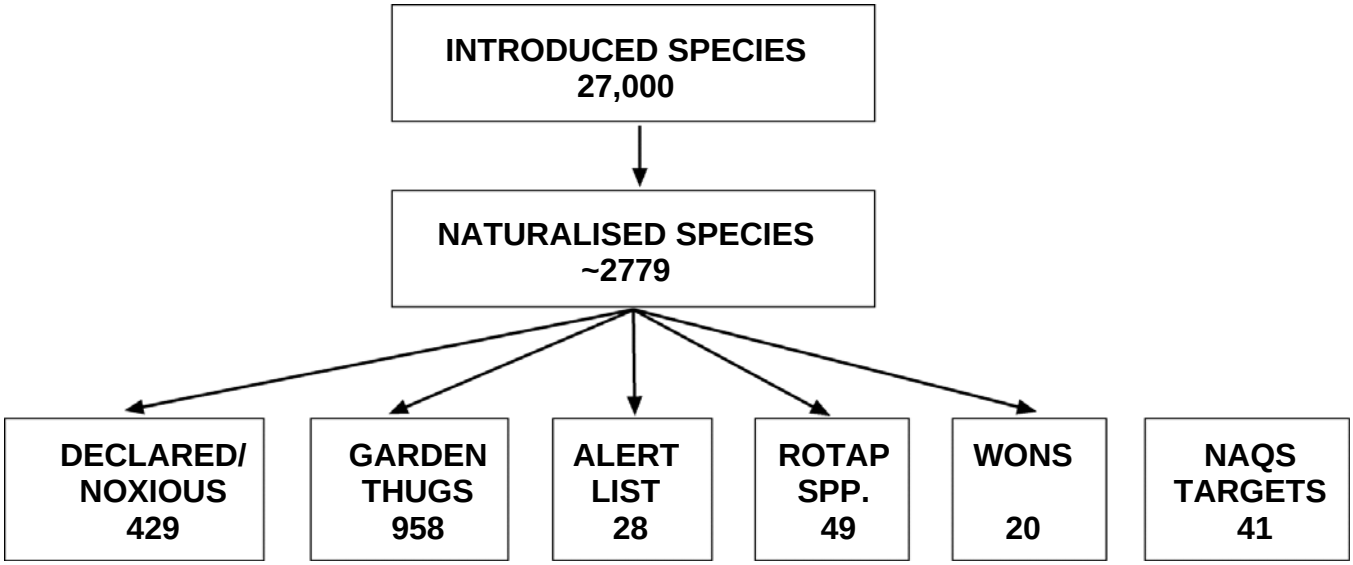


Figure 1. The stages of plant invasions with numbers of species known for Australia for the different stages (based on data of R.P. Randall, pers. comm. & 2001; Virtue *et al.* 2002; Groves *et al.* 2003, DEH 2004; Virtue *et al.* 2004). For definitions of the terms used see above text.

Weed Status by Industry Sector

The three major industry sectors that use plant introductions in Australia are agriculture, forestry and gardening. The gardening industry is by far the dominant sector introducing new plant species. Table 1 shows that 94% of the 27,009 introduced plant species imported into Australia were for ornamental horticultural purposes. Of these, 2,520 are listed as weeds in Australia and 1,831 are naturalised. Invasive garden plant species are by far the largest source of agricultural and environmental weeds, comprising 69% of the 954 listed agricultural weeds and 72% of the 1,765 listed environmental weeds (Virtue *et al* 2004).

Table 1. Weed status by industry sector of exotic plant species introduced to Australia, April 2004. (from Table 2 compiled by R. Randall in Virtue *et al.* (2004)

Industry sector	No. of species introduced (*I*)	Naturalised[A]		Weeds[B]		Agricultural[C] weeds		Noxious[D] weeds		Natural Ecosystem[E] weeds		Combined Agricultural, Noxious & Natural Ecosystem weeds[F]	
		No.	*% of I*	No.	*% of I*	No.	*% of I*	No.	*% of I*	No.	*% of I*	No.	*% of I*
Food Crops	221	85	*38*	105	*48*	26	*12*	8	*4*	55	*25*	58	*26*
Pasture (Poaceae)	490	150	*31*	180	*37*	82	*17*	7	*1*	116	*24*	124	*25*
Pasture (Fabaceae)	499	163	*33*	196	*39*	66	*13*	11	*2*	115	*23*	126	*25*
Pasture (the rest)	97	36	*37*	41	*42*	11	*11*	3	*3*	20	*21*	23	*24*
Total Pasture	1 086	349	*32*	417	*38*	159	*15*	21	*2*	251	*23*	273	*25*
Forestry[G]	633	149	*24*	226	*36*	35	*6*	30	*5*	103	*16*	108	*17*
Gardening	25 360	1 831	*7*	2 520	*10*	660	*3*	273	*1*	1 279	*5*	1 366	*5*
Accidental[H]	207	186	*90*	185	*99*	84	*45*	24	*13*	121	*65*	141	*76*
Accidental & Intentional[I]	1 051	776	*74*	828	*79*	443	*42*	137	*13*	592	*56*	640	*61*
Total Introduced[J]	27 009	2 779	*10*	3 480	*13*	954	*4*	343	*1*	1 765	*7*	1 953	*7*

[A] Specimens lodged in Australian herbaria (Hosking 2003; Randall 2004).
[B] Listed as weeds in Australia in various texts (Randall 2002, Randall 2004).
[C] From Groves *et al.* (2003) and Randall (2004).
[D] From www.weeds.org.au
[E] Species cited as "Environmental Weeds" in Randall (2004).
[F] This is less than the sum of all weed types as some species occur as more than one type.
[G] This includes species used for forestry purposes overseas but not currently in commercial production in Australia (Randall 2004).
[H] Species cited as "Contaminants" (e.g., of imported grain, fodder, ballast, packing materials, livestock) in Randall (2004).
[I] This is the upper limit of accidental introductions. Species are likely to have been introduced to Australia as contaminants, but are also known to have been deliberately cultivated in Australia (Randall 2004).
[J] This is less than the sum of all industry sectors as some species occur in more than one sector.

Chapter 3. Two Hundred Years Plus of Plant Invasions in Australia

Early introductions

When Aborigines arrived in Australia more than 40 000 years ago they do not seem to have brought any plant propagules with them. The first known plant to arrive and establish and become naturalised in Australia was Tamarind (*Tamarindus indica*). It was associated with the visits of Macassans who came from the South Celebes and camped on the northern shores of Australia to collect the marine animal 'trepang' or 'beche-de-mer'. On their annual voyages over a 200 year period from about 1700, the Macassans brought large quantities of tamarind fruit with them for their own diet. Tamarind is now spreading naturally along northern Australian coasts and its presence can no longer be used to indicate former Macassan campsites (Macknight 1976).

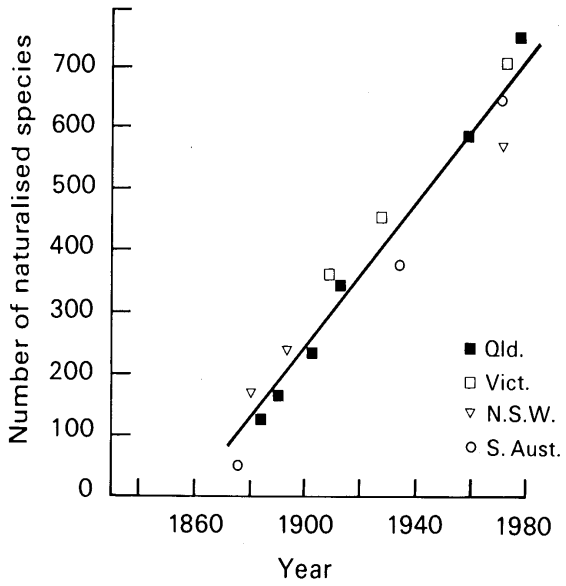
Accurate historical records of plant introductions since European settlement date from the arrival of the first fleet in 1788, followed by the first comprehensive botanical reconnaissance of the Australian coast conducted by Robert Brown in 1802, during Matthew Flinders' voyage of circumnavigation. Between 1802 and 1804, Brown collected 29 species of introduced plants in the Sydney region, including such well known weeds as Greater plantain (*Plantago major*), Musky storksbill (*Erodium moschatum*), Purple loosestrife (*Lythrum hyssopifolium*) and Annual poa (*Poa annua*) (Groves 2002). All Brown's 29 species were of European origin; they had presumably been introduced to Sydney in the 14 years since 1788 as accidental seed contaminants in soil, stock feed and crop seed supplies from England or, in the case of four crop species, deliberately (Frost 1993). Some of Brown's species were noted as occurring in gardens, e.g. Common mouse-eared chickweed (*Cerastium vulgare*) that Brown found in George Caley's garden at Parramatta (Maiden 1916). Many of the species listed by Robert Brown were also present in South Australia prior to 1855 (Kloot 1985) and at least 10 of the 29 were in Tasmania prior to 1878 (Rozefelds *et al*. 1999). So began the invasion process for plants; it has continued ever since.

Quantitative aspects

The rate of increase in the number of naturalised plant species in four Australian States (South Australia, Victoria, New South Wales and Queensland) is linear over the period 1870 to 1980, with from about four to six species naturalising per state per year over those 110 years (Fig. 2a) (Specht 1981). More recently, Groves *et al.* (1997) showed an increase in that base rate for the number of species naturalising for all of Australia over 25 years from 1971-1995 (Fig. 2b). We conclude that the rate of naturalisation is increasing. The next wave of plant invasions and naturalisations will most probably occur from plant species already introduced to Australia.

The few quantitative analyses of Australia's naturalised flora show that about two thirds of the total number of naturalised species have been introduced deliberately. For instance, of the 729 species in the South Australian naturalised flora for which information exists (80% of the total 904 species recorded at that time), 70 % were introduced deliberately (Kloot 1987). More than half of these deliberate introductions were as woody ornamental plants, although some were introduced as fodder, culinary, hedge or medicinal plants (in that order of importance – see Table 2).

(a)



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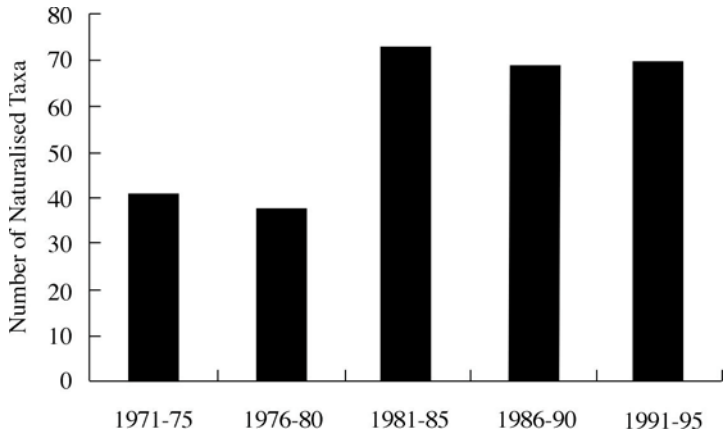

Figure 2. (a) Number of naturalised plant species in the four Australian States of Queensland, New South Wales, Victoria and South Australia 1870-1980 (Fig. 14 of Specht 1981); (b) Number of plant taxa naturalising in Australia for each five-year period between 1971 and 1995 (Fig. 4 of Groves *et al.* 1998).

Means of introduction

Mulvaney (1991) analysed historic records in nursery catalogues of species introduced for ornamental horticulture to four Australian cities (Sydney, Canberra, Melbourne and Adelaide) and found that more woody species were introduced deliberately than were herbs – a result that reflects the predominance of woody species from the very earliest years of European settlement (Frost 1993). A more recent analysis of the Australian naturalised flora as a whole showed that about two thirds of the total number of species that had naturalised between 1971 and 1995 had been originally introduced deliberately, mostly for ornamental horticulture (Groves *et al.* 1997) (Figure 3). Whilst some of Australia's most invasive plants have indeed been introduced accidentally – as contaminants of seed or ballast, for example – the majority has been introduced deliberately, mostly as woody ornamental plants.

Table 2. The means of introduction of the naturalised species of South Australia (from Kloot 1987)

Deliberately introduced	**Documented**	**Suspected**	**Total**
Ornamentals	319	40	359
Fodder plants	58	17	75
Culinary plants	43	1	44
Hedges	14	-	14
Medicinals	8	5	13
Other	9	1	10
Total	451	64	515
Unintentionally introduced	**Confirmed**	**Possible**	**Total**
Attached to stock	4	88	92
Contaminated seed	16	41	57
Ballast plants	7	36	43
Contaminated footwear	-	11	11
Contaminated fodder	3	3	6
Other	5	-	5
Total	35	179	214
No information			175
Grand Total			**904**

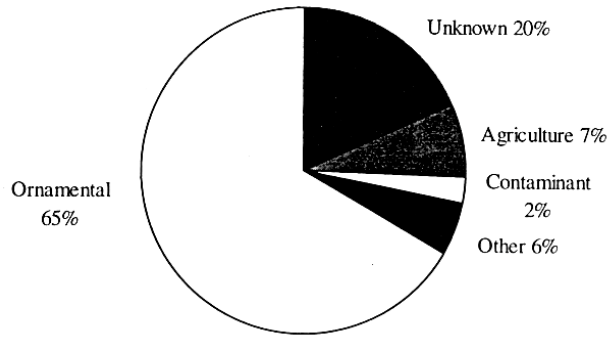

Figure 3. Means of introduction of those plant species naturalising in Australia between 1971 and 1995 (Fig. 7 of Groves *et al.* 1998).

For the flora of Auckland, New Zealand, numbers of naturalisations were assigned to definite periods of time since European settlement. Esler & Astridge (1987) showed that the number of naturalised species deliberately introduced for ornamental horticulture had increased proportionally with time. By 1987 this subgroup constituted an increasingly higher percentage of all naturalisations than for earlier periods (Figure 4). Although there are no strictly comparable data for Australia, Mulvaney's 1991 analysis (see above) showed that, while three quarters of the woody plants recorded as growing in early Sydney (up to 1810) were introduced economic plants that could be used for food, medicine, dye or building materials, the proportion of ornamental woody plants that after naturalisation became environmental weeds increased with time. Hedge plants in particular often spread from urban plantings (see Box 1 on pg. 20).

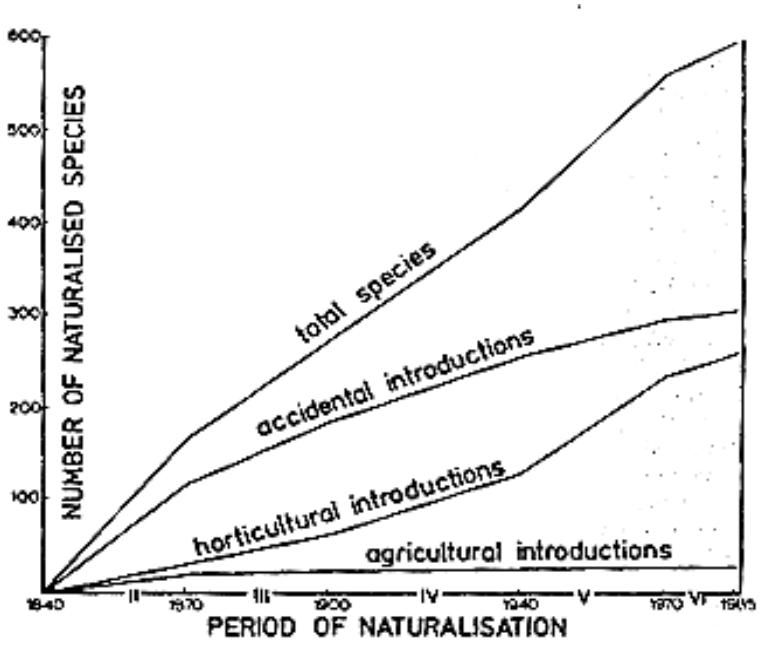

Figure 4. Rates of naturalisation of accidental, horticultural, and agricultural plant introductions to urban Auckland for six periods of naturalisation (Fig. 1 of Esler & Astridge 1987). Note the increasing proportion of deliberate horticultural introductions that have naturalised since 1940.

Box 1: Canberra's hedges – a case study of ornamentals emerging as weeds

*'I've just noticed how yellow some of the trees are – leaves are bright and you've got no idea how pretty they look amongst the red-leaved trees, hedges with scarlet berries and pale green firs (*sic*). It's awfully beautiful.'*

(Edwin Charles in a letter to his mother, 2 March 1937)

Canberra, as the National Capital, was modeled on the English garden cities of Wellwyn and Letchworth where hedges were a prominent element in the streetscape. This concept was confirmed by building regulations developed by the Federal Capital Commission which prohibited front fences, and promoted hedges as part of the 'garden city' image.

A list of plantings at Acton Nursery in Canberra in 1912 included the following species for use as hedge plants: *Ligustrum sinense, L. japonicum, L. lucidum, L.* 'Golden City', *L. vulgare, Cotoneaster simonsii, C. microphylla, Crataegus pyracantha, C. crenulata, Photinia serrulata, Euonymus japonica aurea, E. marginata* and *Berberis vulgaris.*

By 1950 the approximate length of hedges in Canberra city was 143 km. Of the 350 streets listed for 13 suburbs in the Capital, 92 streets were planted with *Pyracantha* spp., 55 with *Ligustrum* spp. and 27 with *Cotoneaster* spp. There were 53 streets planted with *Photinia serrulata* (syn. *P. serratifolia*), 12 with *Euonymus* spp., 3 with *Arbutus unedo,* 2 with *Ilex aquifolium* and 2 with *Berberis thunbergii* (Hince 1992). All of these species are now regarded as either invasive garden plants and/or environmental weeds.

Initially, front hedges were pruned twice a year by the Government and this probably reduced the number of flowers and fruits which developed. Following a Ministerial decision in 1954 that decreed that hedges would no longer be cut at departmental expense, some people removed their hedges rather than face the chore of cutting them, while other residents allowed them to grow freely. Flowering and fruiting thus increased. By 1991, results of an environmental weed survey of the ACT showed that many of the species formerly grown as hedge plants had become established and were spreading in bushland.

By 2001 all species of *Ligustrum, Cotoneaster* and *Pyracantha* were declared 'Pest Plants' under Section 1 of the *Land (Planning and Environment) Act 1991*. Declaration does not require the immediate removal of these plants from gardens or prohibit them from sale. It does, however, require preparation of a management plan to control the spread of declared species. In addition, management plans are required to secure funding for their control.

A Bush Friendly Nursery scheme was introduced, also in 2001, when nurseries agreed to discontinue stocking a list of plants developed by Weedbusters ACT. The list includes all species of *Ligustrum, Cotoneaster* and *Pyracantha.* Monitoring of nurseries and other outlets is carried out together with educational programs. These include promotion of alternative species by the ACT Heritage Council for early Canberra gardens in declared heritage areas and also 'weed swaps' where people may exchange weeds for non-weedy species at waste disposal centres. Some problems with hedge plants still remain, however.

Chapter 4. Negative Impacts of Invasive Garden Plants

(a) IMPACTS ON AUSTRALIAN BIODIVERSITY

Species extinctions

Extinction of a native species is the end point of a long multi-stage process of ecological change along which there are identifiable 'milestones' that impact on biodiversity. Internationally, competition from introduced species is claimed to be a significant step associated with loss of native species (King 1987). Another factor, sequenced as another milestone, is fragmentation of species range as a result of land clearing and other human activities (King 1987). In Australia, recent state legislation has reduced, at least legislatively, the significance of land clearing and consequent fragmentation of rural landscapes as factors in loss of biodiversity. This recent change thus increases the urgency to consider the case for assessing the impacts of introduced species as one of the major factors, if not **the** major factor, in continuing and future loss of native biodiversity.

Table 3. The thirteen milestones on the road to extinction (after King, 1987)

1. **Discovery and scientific description of the species**
2. **Continuous decrease in numbers**
3. **Habitat loss**
4. **SIGNIFICANT FRAGMENTATION OF RANGE OR CONTRACTION OF DISTRIBUTION**
5. **Over-exploitation and crash**
6. **Profound reduction in reproductive success**
7. **Curtailment of seasonal cycles**
8. **EXCESSIVE COMPETITION FROM INTRODUCED SPECIES**
9. **Hybridization and genetic swamping**

(10, 11 and 12 omitted)

13. **Extinction**

In this section we present some documented examples of the effects of a deliberately introduced invasive plant on native species loss and hence on biodiversity. We also discuss several instances of the effects of deliberately introduced invasive plants on different taxonomic groups of species to show that most documented impacts are overwhelmingly negative. Based on such documentation we point to the implications of these cases to future loss of biodiversity, especially native plant diversity, as a result of past and present deliberate introductions of plants to Australia for ornamental horticultural purposes.

For the last 20 years or so in Australia, studies have concentrated on individual rare or endangered species and the ecological factors that may threaten the continued viability of plant populations (see, e.g., Groves & Ride 1982). For native plants, responsibility for this aspect lies with the Federal Department of Environment & Heritage, who presently maintains a database of rare or threatened species. Leigh & Briggs (1992) analysed the numerical incidence of various environmental threats to this group of plants. Of the 88 native plant species known to be extinct, the majority (77 species) were presumed extinct because of grazing and agriculture (Table 4), whilst weed competition was listed as the presumed cause of extinction for only 4 species (i.e. 4.5%). Other presumed causes of extinction were industrial and urban development (3 species) and roadworks (1 species).

Relative to past presumed causes, the present and future threat to species endangerment posed by competition from weeds was significantly greater (Leigh & Briggs 1992). Of the 441 native plant species classed as endangered in 1992, 57 (or 13 %) were threatened by weed competition. Only 'low population numbers' and 'grazing and agriculture' surpassed the present and future threats to species survival posed by weed competition (Table 4). Leigh and Briggs' data apply at the national level; in some specific cases, these national trends are magnified at either local or regional levels. We conclude that the impact of weed competition is an increasingly major threat to survival of native plant species. Two examples of this threat follow.

Table 4. The numbers of presumed extinct and endangered plant species in the Australian flora in relation to a variety of environmental threats (from Leigh & Briggs 1992).

Threat	No. presumed extinct spp.	No. endangered spp.	
	Presumed cause	Past threat	Present & future threat
Low numbers	0	10	85
Roadworks	1	8	57
Weed competition	**4**	**12**	**57**
Grazing and agriculture	77	163	110
Industry & urban development	3	20	21
Fire frequency	0	10	17
Other	3	48	94

Endangerment of native plant species by a weed – two examples

1. An orchid (*Pterostylis arenicola*) endangered by Bridal creeper (*Asparagus asparagoides*)

The Sandhill greenhood (*Pterostylis arenicola*) is an endangered species now restricted nationally to three small populations in South Australia, two of which are near Tailem Bend and Poltalloch with the third on a golf course in suburban Adelaide. This terrestrial orchid emerges from tubers in about June of each year, produces a flat rosette of green leaves over the winter before it flowers in September-October and dies back in November-December (Sorensen & Jusaitis 1995). The orchid populations at Tailem Bend and Poltalloch are endangered by the weed Bridal creeper (*Asparagus asparagoides*).

Bridal creeper was deliberately introduced from South Africa at least 120 years ago for floricultural purposes. It is now naturalised in many southern Australian ecosystems, including coastal vegetation and mallee shrubland (as at Tailem Bend). Bridal creeper is generally regarded as one of the most serious environmental weeds of southern Australia and is a Weed of National Significance (WONS). Below-ground, in established infestations, Bridal creeper forms a network of 'roots' (rhizomatous tubers) that bear numerous fleshy tubers which entwine to form a dense, impenetrable mat, about 5-10 cm deep in the soil. New season's shoots appear annually in autumn from this underground tuber mass and quickly smother other vegetation. After flowering in early spring, numerous red berries attract birds in late spring. The creeping shoots are deciduous over dry summers.

At Tailem Bend there was an average of more than 40 orchids per m^2 in the absence of Bridal creeper but when the weed was present that level was reduced to about 10 per m^2 (Sorensen & Jusaitis 1995) (Fig. 5). It is likely that this strongly negative impact is because both species actively grow from a tuberous rootstock over autumn and winter and both also fruit and die back during spring and summer at the site. These similarities in growth and development complicate the management of Bridal creeper, as the opportunities to apply herbicide without affecting the orchid are limited. However, in a program of biological control, the release of a rust (*Puccinia myrsiphylli*) specific to Bridal creeper may gradually lessen the negative impact of Bridal creeper on orchid numbers in the longer term, and hence allow for population recovery of the orchid.

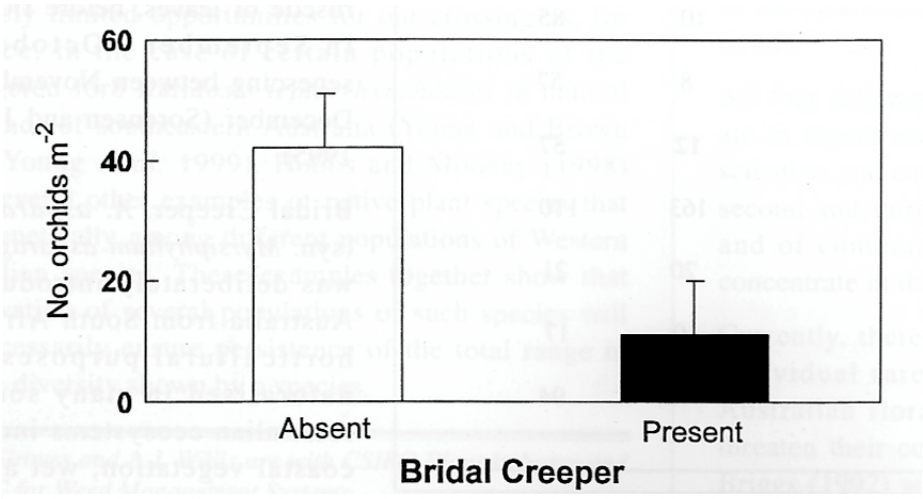

Figure 5. Numbers of Sand-hill greenhood (*Pterostylis arenicolor*) with and without Bridal creeper (*Asparagus asparagoides*) at Tailem Bend, SA (from Sorensen & Jusaitis 1995).

*2. A native shrub (***Pimelea spicata***) also endangered by Bridal creeper (***Asparagus asparagoides***)*

Pimelea spicata is a small shrub growing to about 50 cm that bears terminal spikes of pink-white flowers from September to May. It reproduces mainly from seed but it also possesses a thick tap root that enables re-sprouting after fire and other disturbances. This species was once widespread in southeastern New South Wales, but habitat fragmentation ('milestone 4' – see earlier) now restricts *P. spicata* to about 25 separate populations on the Cumberland Plain south-west of Sydney and a few along the Illawarra coast. The species is in danger of extinction unless adequate conservation strategies are initiated soon (Briggs & Leigh 1996).

Competition from several environmental weeds ('milestone 8' - see earlier), including St John's wort (*Hypericum perforatum*), Bitou bush *(Chrysanthemoides monilifera* subsp. *rotundata*), Blackberry (*Rubus fruticosus* agg.), Kikuyu (*Pennisetum clandestinum*) and the afore-mentioned Bridal creeper threaten many populations of *P. spicata.* Such competition may, if not managed, hasten the extinction of several localised populations of the native species *P. spicata*.

Of all the weed species impacting on *Pimelea spicata* populations, Bridal creeper poses the primary threat to survival of the largest populations at several sites, including one comprising about one-quarter of all remaining *P. spicata* individuals. At this site, near Camden, NSW, Bridal creeper currently co-occurs with about 60% of the *P. spicata* adults (Willis, pers. comm.), completely smothering some, and occurring at relatively low densities alongside some others.

Below ground, Bridal creeper roots compete with *Pimelea spicata* for nutrients, water and 'space', even after the shoot canopy of Bridal creeper has died back (see earlier). Indeed, preliminary evidence that the presence of Bridal creeper roots, irrespective of shoots, limits the germination of *P. spicata* (Willis, pers. comm.) implies that the relative impact of root competition may be greater than that of shoot competition, especially for the early stages in the life history of *P. spicata.*

Control methods for Bridal creeper that limit formation of new tubers and shorten the longevity of existing ones will reduce the threat posed at all sites, but only if they operate in the medium or longer terms, e.g. by the action of the slow-acting rust for biological control mentioned earlier. Information on the impacts of various other methods of control, e.g. herbicide application, fire, soil disturbance and clearing, on both species is also necessary before effective threat abatement plans can be developed for *P. spicata* threatened by Bridal creeper.

Discussion

Bridal creeper is one example of a species-species impact of a weed endangering native plants. More recently, Groves *et al.* (2003) identified 49 naturalised species, including Bridal creeper, that were known to be directly impacting native plant species rated as 'rare' or 'threatened' in the Australian flora (their Table 5). And there undoubtedly are many others for which the evidence is only now being gathered and/or published (see, e.g. DEC 2004).

We now consider the evidence for the effects of a further two deliberately introduced plant species on different groups of native plants and animals by considering ecosystem impacts, rather than the individual species-species impacts discussed above.

Changes in species groups in a natural ecosystem by a weed – two examples

1. Tropical wetlands and Mimosa pigra

Giant sensitive plant (*Mimosa pigra*) is a leguminous shrub native to tropical America that was most probably introduced to the Darwin Botanic Garden in 1891 (Miller & Lonsdale 1987). On the Adelaide River floodplain, to which plant material was transplanted subsequently, thickets of *M. pigra* have displaced native sedgeland that was preferred habitat for many native birds, especially the endangered Magpie goose (*Anseranas semipalmata*) . The latter species depended on the native sedges for nesting and food. Thickets of *M. pigra* were found to be unsuitable for Magpie geese, to have lower overall bird and lizard abundances, less herbaceous vegetation and fewer native tree seedlings than uninvaded natural vegetation (Braithwaite *et al.* 1989). All these different taxonomic groupings of organisms were negatively impacted by the presence of the weed. There seemed to be no effect of *M. pigra* on frog numbers (a neutral impact) and a positive impact of *M. pigra* on numbers of the rare marsupial mouse *Sminthopsis virginiae,* which probably gains from the provision of shelter from predators and from an enhanced high-protein seed supply (Braithwaite & Lonsdale 1987).

This example shows that any simple consideration of the impacts of a major weed such as *Mimosa pigra* on numbers of native plant species as a measure of biodiversity value may be complicated by some compensatory effects on other biota in the invaded ecosystem. It provides a good example of the inadequacy of considering only certain species or certain trophic levels when considering impacts of environmental weeds on biodiversity. On balance, the impacts of *M. pigra* on native biodiversity are overwhelmingly negative.

2. Arid riverine woodlands and Tamarix aphylla

River systems in arid Australia are prone to flooding at irregular intervals. One such severe flood occurred in the Finke River in central Australia in 1974 that led to marked changes in the biodiversity of the woodlands bordering the river system downstream. Seed of the deliberately introduced tree Tamarisk (*Tamarix aphylla)* was carried down in floodwaters from homesteads where it had been planted for shade; it soon established readily in the riverine woodlands dominated by River red gum (*Eucalyptus camaldulensis*). Within 15 years of the flood, *T. aphylla* had become an environmental weed, in the sense that it was having a negative effect on regeneration of the River red gum and markedly changing the floristic composition of the ground vegetation (Griffin *et al.* 1989). In terms of numbers of other biota in the riverine ecosystem, there were negative impacts of the weed on the numbers of reptiles and on most bird groups although it had a positive effect on the numbers of aerial insectivorous birds. There seemed to be no effect of the weed on numbers of granivorous bird species (Griffin *et al.* 1989).

There were also effects on ecosystem attributes that were either negative or positive depending on the measure considered – the river hydrology changed, there were fewer logs (and hence less habitat for reptiles?) and the salt level in the river water increased 20-fold – all negative impacts. The presence of more litter and the increased levels of shade from the Tamarisk trees (cf. the eucalypts) may be seen as positive impacts, thereby benefiting those organisms which prefer increased shade. In this central Australian example, no estimates of native fish abundance were obtained but in an analogous example of an invasion in arid southwestern United States by the closely related *Tamarix ramosissima*, numbers of some already-endangered native fish species were reduced still further (Loope *et al.* 1988).

This example shows, as does the earlier one for *Mimosa pigra*, that effects of an invasion by the tree species *Tamarix aphylla* on native biodiversity can vary depending on which measure of biodiversity is chosen. A natural ecosystem, made up of different species and groups of organisms, may be expected to show a range of relationships between weed invasion and biodiversity value – some positive, some neutral and most negative (Adair & Groves 1998).

Both examples also show that deliberate plantings of ornamental woody species having weed potential some distance upstream from an ecosystem can lead to major change in that ecosystem if the seed is borne by floodwaters occurring either annually (in the example of *M. pigra*) or episodically (in the example of *T. aphylla*). The widespread plantings of shade-producing *Tamarix* species around homesteads throughout inland Australia may pose an environmental hazard whenever episodic floods occur to carry *Tamarix* seed to riverine woodlands downstream. A second instance of *Tamarix* invasion may be occurring currently in the Gascoyne River catchment near Carnarvon, in Western Australia, although this awaits documentation in biodiversity terms.

(b) IMPACTS ON AUSTRALIAN AGRICULTURE

Introduction

Weeds influence crop and pasture ecosystems in many ways. The crop systems themselves consist largely of introduced plants, as few native plants other than Macadamia (*M. integrifolia*) have been domesticated. The plant species that form the basis of pasture ecosystems in southern Australia are also mostly non-native, having been introduced deliberately from mainly Mediterranean Europe. On the other hand, most of the plants that form the basis of grazing systems in northern (summer-wet) and central (semi-arid, rangeland) regions are native to those regions, with some major exceptions, e.g. Buffel grass (*Cenchrus ciliaris*).

Whereas the negative impacts of deliberately introduced weeds on natural ecosystems are expressed in terms of decreases in biodiversity, leading in some cases, to species extinctions, the negative impacts of weeds in agricultural ecosystems are mostly expressed in terms of increased costs to producers and consumers. The presence of weeds leads to the need to cultivate land for crops or to re-sow pastures, or to spray with herbicides, or both. Weed presence is associated directly with reductions in crop and pasture yield and with product contamination. Some weeds may poison animals or lead to poor animal performance. And each of these aspects incurs a cost which in total amounts to about $4 billion a year (Sinden *et al.* 2004).

Invasive garden plants that have large impacts on agriculture include Serrated tussock (*Nassella trichotoma*), Paterson's curse (*Echium plantagineum*) and Lippia (*Phyla canescens*). Those that have the potential to cause large impacts to agricultural industries should they ever naturalise and spread include Bear-skin fescue (*Festuca gautieri*) and the Horsetails (*Equisetum* spp.), the latter considered to be among the world's worst agricultural weeds (Holm *et al.* 1977).

Economic aspects

Costs for the negative impacts of a few individual weed species are available. For example, the cost of serrated tussock in NSW and Victorian pastures is estimated to be in excess of $45 million and increasing (Jones & Vere 1998; Nicholson *et al.* 1997). While serrated tussock appears to have been accidently introduced, it was subsequently cultivated as an ornamental tussock grass (Randall 2004 pers. comm.). With a pattern of increasing resistance to herbicides shown by several crop weeds, especially the annual grass group, the costs of weeds in crop systems could increase still further.

Financial estimates of the costs of other individual weed species in southern Australian pastures (cf. crops) are also available for two cases in which biological control of the species was proposed but faced opposition from some sectors of the Australian community. In each case, there were demonstrable inter-sectoral conflicts arising from the fact that the two deliberately introduced weeds had both negative and positive impacts. The first example (see Box 2 on pg. 29 also) concerns Paterson's curse (*Echium plantagineum*) which produces alkaloids that affect liver function in grazing animals (especially sheep and horses) but which also produces honey with a pale colour preferred by exporters to the Japanese market. Further, while Paterson's curse is a serious pasture weed in most parts of southern Australia, it may be considered as useful fodder for animals in some semi-arid rangelands, especially in northern South Australia, where its common name is Salvation Jane. A second and similar example is provided by Blackberry (*Rubus fruticosus* agg.) where the benefits of controlling it biologically in pasture were found to far outweigh the small benefits to Tasmanian berry growers and honey producers. Both examples are of species deliberately introduced for their horticultural potential but which now impact strongly and negatively on agricultural ecosystems.

Some other negative impacts of weeds on agricultural ecosystems may add to annual costs eventually. For instance, recent attempts to prevent the incursion of two introduced plant species (Mexican feather grass, *Nassella tenuissima* (see Box 4 on pg. 31), and Spanish thistle, *Onopordum nervosum*) that have

serious potential to impact negatively on pasture systems in southern Australia were estimated to generate benefits to agricultural producers of $83 million in 2000-2001 (CIE 2001). This estimate was based on a reduction in the probability of these weeds becoming naturalised, and thereby a reduction of potential costs they would impose should they ever become established. At that time, both species were available only from the nursery industry (as plants or seeds, respectively, for landscaping) but Mexican feathergrass was recently detected as naturalised (Hosking 2004). The former species was not only being sold by a nursery in Victoria in February 2004 but at the same time it was being actively promoted by horticultural journalists in Australia and the UK, while the latter species was actively promoted by a popular gardening program on television.

The four boxes below outline the actual or potential agricultural impacts from three escaped garden plants at different stages of their invasion process. The first is Paterson's curse, which is a widely established weed. The second is Lippia, which is rapidly emerging as a major agricultural weed. The third is Mexican feathergrass, which has been introduced into Australia but has recently been detected as naturalised. The fourth is Bear-skin fescue, which was recently permitted for import by the garden industry and should be of major concern to the grazing industry in temperate Australia.

Box 2. Paterson's Curse (*Echium plantagineum*) - a widespread naturalised invasive garden plant causing major agricultural impacts

Echium is a genus of about 30 species of annual and biennial herbs native to Europe. There are about 23 species of the genus represented on the Canary Islands, including *E. plantagineum,* although the latter species occurs mainly in Mediterranean Europe where it may be occasionally weedy. *Echium plantagineum* has spread to most temperate-climate regions of the world, including the Americas, South Africa and New Zealand.

The earliest record of introduction of *E. plantagineum* to Australia is in 1843 to 'Camden Park', the garden and nursery of John and Elizabeth Macarthur near Sydney. Subsequently, it appeared for sale in various nursery catalogues, e.g. in James Dickinson's at Hobart in 1854 and, as the synonym *E. lycopsis,* in J. & J. Rule's at Richmond, Victoria, in 1857 and 1860. It was first recorded as weedy at Gladstone near Port Pirie in South Australia in 1889 and at Cumberoona, near Albury in NSW in 1890. It had been introduced to the latter site as a garden plant by the Patterson family; hence one of its common names, the others being Salvation Jane and Lady Campbell's weed.

Movement of seeds is its only means of dispersal and although Paterson's curse is not a crop weed, it nevertheless contaminates grain. Its spread into Tasmania is believed to be due to the importation of contaminated grain from the mainland for poultry feed. Seeds are also transported to new areas in fodder. Seeds may remain dormant in soil for about five years.

The benefits and costs of Paterson's curse were presented in detail in a debate during the 1970s and early 80s because of a proposal by CSIRO Entomology to introduce insects from Europe for biological control of the weed. Those opposed to the introduction argued the value of Paterson's curse to the honey industry and as feed for grazing stock. Those in favour of biological control identified the weed's toxic properties, its competition with more desirable pasture species and its irritant properties as major and costly disadvantages. An independent inquiry into the merits of both the negative and positive impacts of this biological control of this weed recommened release of insects to control growth and development of Paterson's curse on the basis of an economic analysis of the costs ($30 million annually) and benefits ($2 million annually) to Australia (IAC 1985). The debate was resolved and the biological control program initiated only in 1988 when Victoria independently introduced, released and distributed to other states the leaf-mining moth *Dialectica scalariella.* A number of other insects have since been introduced and chemical control methods developed subsequently.

Despite the existence of a biological control program for the species, Paterson's curse remains a major weed of importance to the grazing industry. The local nature of some weed problems was highlighted in 2004 by the deaths in Canberra of at least 60 horses being attributed to poisoning by Paterson's curse. Intensive media publicity changed sweeps of purple wildlfowers in an otherwise drought-bared landscape into fields of poison. A long-time rural problem was suddenly an urban one as well.

Box 3. Lippia (*Phyla canescens*) - a major emerging naturalised invasive garden plant causing serious agricultural impacts

Phyla is a genus of about 15 species of creeping perennial herbs that are sometimes woody at the base. They root from the stems and form dense mats. The small leaves are opposite and usually have serrate margins. The small nectar-rich flowers are borne profusely throughout summer. The genus is native to the warmer regions of the Americas. Some species of *Phyla* were formerly called *Lippia,* hence the common name.

While *Phyla nodiflora* is considered native to northern Australia, its congener *P. canescens* is native to South America. *Phyla canescens* is present in all mainland States of Australia, except the Northern Territory (Julien *et al.* 2004). Lippia invades and dominates areas that are not under cultivation, which includesperennial pastures, riprarian areas, and roadsides. It contributes to deep soil drying resulting in bank slumping and erosion, particularly in cracking clays leading to damage to dam walls, diversion banks, and roads. It appears to be the major invasive species in the Murray/Darling Basin where it is estimated to infest at least 5% or 5.3 million hectares and this is predicted to increase in response to recent floods. Lippia thrives on frequent flooding of short duration. The rapid increase in its distribution in the Condamine catchment, where time series information is available, is set out in Figure 6.

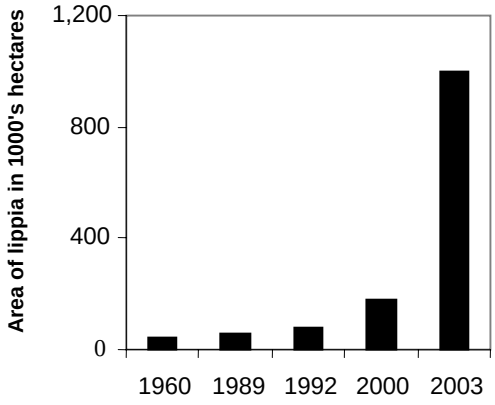

Figure 6: The estimated distribution of lippia in the Condamine catchment (Fig 1 of Julien *et al.* 2004 based on data from Mann 1960;Csurhes 1989; Powell 1992 in Lucy *et al.* 1995; Earl 2003)

Lippia replaces productive pasture species and also decreases grazing productivity, in certain cases requiring total destocking. Additionally, a farm's value is decreased if lippia is present due to reduced roductivity and the cost of largely ineffective controls (Lucy *et al.* 1995; Earl 2003). The weed is estimated to cost the grazing industry $38 million per year, and have an environmental cost of $1.8 billion per year (Julien *et al.* 2004).

P. nodiflora is naturalised in NSW (where it is declared noxious) and WA, and is available for sale currently in NSW, Qld, Vic. and WA (Hibbert 2002). One or both species are widely and commonly grown in gardens in inland Australia.

The threat of Lippia to natural ecosystems lies in its direct impact on native groundcover species in floodplain communities. Because it prevents the recruitment of 11 threatened or 'at risk' herbaceous species, prevents recruitment of woody plants and impacts on food sources and habitat for 9 threatened species, its presence thus leads to loss of biodiversity.

Lippia spreads vegetatively when small fragments are broken during floods and become stranded as floodwaters recede. Seeds dominate the propagule bank of the floodplain community. They may be spread by water or in mud by agricultural machinery and on the feet of waterbirds and the hooves of grazing animals. Seed may also be transported in the guts of sheep and other animals. The root system of Lippia is less effective than that of grasses in binding cracking clay soils, a characteristic that is most apparent on steep stream banks and roadsides, where its presence leads to soil instability.

Both physical and chemical control methods present problems in relation to non-target species. The possibilities for biological control are confused by the similarities of *Phyla canescens* and *P. nodiflora*. For instance, a number of native butterfly species utilise *Phyla* species as a food host.

Box 4. Mexican feather grass (*Nassella tenuissima*) – a newly naturalised invasive garden plant that has the potential to cause major agricultural impacts

The introduction and subsequent promotion for sale of Mexican feather grass, a native of New Mexico and Texas in the US, is a clear example of how changes in gardening fashion can lead to new problems – in this case potentially for agriculture. It confirms the importance of correct and current nomenclature.

Over the last decade, tussock grasses have become popular in home gardens and public landscaping projects, particularly those edging new freeways and golf course 'roughs'. Mexican feather grass is one that looks as if it would be suitable for these purposes; accordingly, it has been available for sale in nurseries in Victoria and NSW since 1998.

How did this potentially alarming situation arise? A close relative of Mexican feather grass is Serrated tussock (*Nassella trichotoma*) which is a major weed and a WONS (see earlier). Serrated tussock was first recorded in Australia in 1935; currently it occupies over 1 million hectares in NSW, Victoria and Tasmania. In NSW alone, it has been estimated to cost agriculture more than $40 million annually (Jones & Vere 1998).

In 1996, a Victorian nursery imported a consignment of Mexican feather grass labeled as *Stipa tenuissima.* The genus *Stipa* was at that time included on the list of permitted plants. The taxon *Stipa tenuissima* is now known correctly, however, as *Nassella tenuissima,* a taxon which is not permitted. Had the new name applied at that time, the importation would not have been permitted.

Mexican feather grass is a perennial tussock grass with narrow rolled leaves which grows to a height of 1m. It is difficult to distinguish morphologically from Serrated tussock; it also resembles in general appearance some native *Austrostipa* species (previously known as *Stipa* in Australia). The similarity in appearance means it may be overlooked as a weed.

It has been estimated (McLaren *et al.* 1999) that, if allowed to spread, Mexican feather grass has the potential to cover more than 14 million hectares in all Australian states and territories, about six times that of serrated tussock (Figure 7).

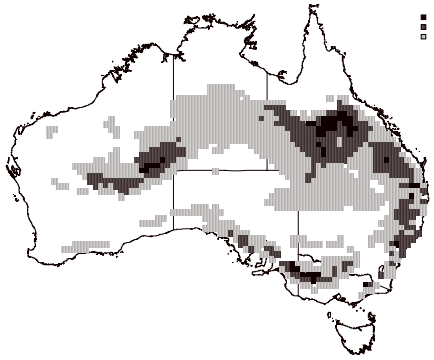

Figure 7. Potential distribution of *Nassella tenuissima* predicted from a climate profile of distributions in its countries of origin (from McLaren *et al.* 2004).
Key: Black = best prediction (10% of mean); Grey = (20% of mean); Light Grey = worst prediction (30% of mean)

The estimated potential economic cost of a Mexican feathergrass infestation spreading over the next 60 years is $39 million (CIE 2001). It has now been declared noxious in Victoria, NSW, SA and WA and prohibited from sale in Victoria, NSW and SA.

Of great concern is that Mexican feathergrass was detected as naturalised in Tamworth, NSW in 2004, only eight years after its importation into Australia (Hosking 2004).

Despite these efforts to stop a problem before the plant is known to be naturalised and spreading, Mexican feather grass is still advertised widely on the internet and in the international horticultural media as a desirable ornamental grass for garden use (see above text).

The potential threat this recent introduction poses to Australian agriculture remains a problem of early detection systems, despite the best efforts of weed taxonomists who still find it for sale in nurseries or promoted by irresponsible horticultural journalists.

Box 5. Bear-skin fescue (*Festuca gautieri*) – a newly introduced invasive garden plant that is a known grazing weed

The history of the European grass *Festuca gautieri* (Bear-skin fescue) illustrates a garden plant in the earliest stage of invasion – the introduction stage (see Chapter 2). This plant species was imported legally into Australia in 2003 by the nursery industry. It is not yet known to be naturalised (compared with *Nassella tenuissima,* which has recently been reported as naturalised, only some 8 years after its introduction).

This grass species is native to southwest France and northeastern Spain and extends over a range of altitudes from the coast into the Pyrenees. It is known to be of low palatability and that it can be dominant in its native habitat. The grass is currently naturalised in the UK (Spafford Jacob *et al.* 2004).

In Australia *Festuca gautieri* is at present permitted entry under current AQIS regulations which is cause for concern because it has been claimed to have the potential to reduce pasture production in grazing systems and to have a negative impact on the biodiversity and structure of Australian native grasslands (Spafford Jacob *et al.* 2004). It is thus both a potential agricultural and environmental weed. The potential climatic distribution of *F. gautieri* across southern Australia is extensive, as shown in Figure 8, determined by the CLIMATE program (Randall, pers. comm.). On the WRA scoring system it rates 10, which puts it in the Reject category (Spafford Jacob *et al.* 2004). Based on this score, the species has been rejected for importation to Western Australia. "Had a similar procedure been followed by AQIS this plant would not have been permitted entry" to Australia (Spafford Jacob *et al.* 2004:5).

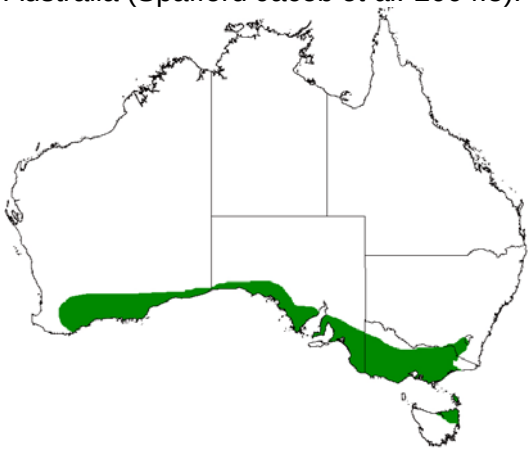

Fig. 8 Potential distribution of *Festuca gautieri* as determined by 'Climate'.

Although not listed as available for sale in Hibbert (2002), it is currently listed as available for sale in Victoria in the November 2004 catalogue of Larkman Nurseries as a lightly frost-tolerant grass that flowers in summer. Given its ecological suitability to most of Victoria (Fig. 8), its current availability for sale in Victoria (and hence nationally, except for WA) seems especially regrettable for the future sustainability of southern Australian pastures and natural grasslands. This case indeed provides a further instance of the open-ness of Australia's "front door" to weedy plants as well as the continued availability of a species still in the introduction stage of the invasion pathway but advertised for sale in a current nursery catalogue and hence available for widespread distribution in southeastern Australia.

Discussion

Consideration of the impacts of weeds on ecosystems is made more complex by the fact that the same species may affect both natural and agricultural ecosystems, although in this Report we have tried to separate the two sets of impacts. Blackberry is a major weed of pastures, but it is an equally major weed in natural ecosystems, especially along waterways in southern Australia. Furthermore, Blackberry is strongly weedy in the establishment phase of forest plantations. When the weediness of St John's wort (*Hypericum perforatum*) was first recognised, it was as a weed of dairy pastures. Land use changed, as a result of this weed status, from pasture to forest plantations of Monterey pine (*Pinus radiata)* in some regions. Currently, the same species occurs mainly in natural ecosystems and on roadsides, along which it spreads, although it continues to be weedy in pine plantations.

A further example is provided by Horehound (*Marrubium vulgare*). This native of the Mediterranean region was deliberately introduced to Australia as a source of herbal compounds (and as an alternative to hops for beer production!). It soon spread to become a weed of sheep-grazed pastures in relatively high-rainfall regions, where it is still a problem plant because of its unpalatability. More recently, it has increased in dominance in some semi-arid areas, where its fruits are spread not by sheep, but by native animals, such as kangaroos, or by rabbits. In northwestern Victoria's Wyperfeld National Park it is common to see horehound as a major weed in areas where kangaroos and rabbits congregate and rest overnight.

From these examples, it is clear that the distinction between weeds in natural and agricultural ecosystems is far from rigid, and many widespread weeds may affect and impact both systems. What is more, their relative impacts on each system – whether negative or positive – may change with time as the same species come to have less impact on changing agricultural systems and more on natural ones.

We now discuss the significance of the different "milestones on the road to extinction" (Table 3) to weed management using the examples we have presented already.

The Sand-hill orchid *Pterostylis arenicola* is known to occur at only three sites separated by a distance of about 100 km. The conservation status of *P. arenicola* has improved recently because of the discovery of the third population within a reserve in the Coorong region. This present distribution pattern of this native orchid may indicate that the species was formerly a component of the herbaceous understorey to low *Callitris* woodland that has become endangered by disappearance of large areas of this vegetation type as a result of land clearance for cereal growing and pasture establishment (Specht 1972). Competition from the weed Bridal creeper is one factor endangering *P. arenicola* populations at two of its three sites, but so too is fragmentation of its original vegetation as a result of earlier land clearance in semi-arid South Australia.

Few if any natural ecosystems are more fragmented than the Cumberland Plain woodlands that occur to the west and south of Sydney (James 1997). Throughout that region, the fragments of natural vegetation remaining are surrounded not by cleared agricultural land as in South Australia, but by 200 years of suburban development spreading from Sydney. The native shrub *Pimelea spicata* was probably a not uncommon component of the understorey to Cumberland Plain vegetation; it still occurs in a number of fragments of this vegetation type. Each fragment has a number of invasive bird-dispersed weeds present, of which Bridal creeper is just one, albeit a major one. Removal of Bridal creeper may lead to localised increases in *P. spicata* populations but the latter will always be predisposed to further weed invasion because the vegetation type in which the endangered species occurs is now so highly fragmented.

Land fragmentation is a more important factor on the road to extinction than weed competition (see Table 3). For *Pterostylis arenicola* land fragmentation occurred many years ago and further fragmentation is unlikely. The conservation status of this orchid thus depends mainly on effective

control of Bridal creeper. For *Pimelea spicata* the situation is different in that further fragmentation of the sites it occupies is highly likely as urban development spreads inexorably from Sydney. And at these increasingly fragmented sites, successful control of Bridal creeper populations could lead to increases in other invasive weeds, such as African olive *(Olea europaea* var. *africana*) or Privet (*Ligustrum* spp.). A major factor in each case is that Bridal creeper is still available for sale (Hibbert 2002; Glanznig *et al.* 2004a). This continued sale of one of the twenty Weeds of National Significance – the highest category of weed status in Australia currently - is a major threat to the survival of the two endangered native plants we have discussed. Only legislative amendments may change this alarming situation and thereby avert extinction of two native species in the longer term. Clearly, the thirteen milestones to extinction also need amending to take account of this continuing commerce in threatening invasive species such as Bridal creeper.

Chapter 5. The Current Situation Concerning the Availability for Sale by Nurseries of Invasive Garden Plants

We postulated in Chapter 2 an increase in the number of species that have become weeds which were deliberately introduced for horticultural purposes, a situation similar to the Auckland region in New Zealand. The number of naturalised species in Australia's flora is increasing linearly with time and shows no evidence of decreasing (Chapter 3). About two thirds of this naturalised flora comprises species that were introduced deliberately for ornamental horticulture. Some of these species are having major and negative impacts on Australian native plants and the ecosystems in which they occur. Some examples were discussed in Chapter 4 of the threats to Australian biodiversity posed by the continuing spread and re-distribution of major weeds, either because they are still being sold by nurseries or because of their re-location to more favourable sites or because of their dispersal by birds from gardens. Other deliberately introduced garden species have escaped cultivation in the past to have major impacts on Australian agriculture.

These three chapters together present the case that two thirds of the weed flora has arisen from species deliberately introduced for ornamental horticulture over the 200 years of European settlement in Australia. These species individually and collectively are having major effects on Australia's endangered species and ecosystems, both natural and agricultural. But, while some known weedy species are prohibited from being sold in several states and territories, what is the current situation nationally and in the states and territories? In this chapter we quantify the information currently available using published and citable lists or catalogues of Australia's invasive flora.

Methods

The basic reference for this study was an up-to-date listing of 1036 naturalised invasive and potentially invasive garden plants provided by Randall & Kessal (2004). This listing is based on an earlier published list (Randall 2001) that contains both introduced and native species, supplemented by the most recent available information on plants for sale by nurseries (Hibbert 2002). In Randall & Kessal's list each taxon is referred to as a 'species' unless there is a distinct and documented difference in the behaviour of a sub-specific taxon from the species. The list contains environmental weeds, significant environmental weeds and so-called 'sleeper weeds'. The analysis for the major weeds presented below does not include the 'sleeper weed' category, as this is a provisional one depending on its definition (see Groves 2004). The final list for analysis thus comprised 720 species (see Appendix 1).

The definition adopted by Randall & Kessal (2004) for the term 'naturalised' is "having self-sustaining and spreading populations with no human assistance, backed by a herbarium voucher specimen" and agrees with our earlier definition (p. 11). A species native to Australia may be naturalised if it establishes self-sustaining populations in an area where it is not known to occur naturally since European settlement. One of the best known examples of such a native species is Cootamundra wattle (*Acacia baileyana*) which is known to occur naturally in a relatively restricted area near Cootamundra, NSW, but is now maintaining self-sustaining populations in other parts of the country.

A garden plant is defined as a species known to have escaped either directly by seed or by other propagules from cultivation. Escape may be directly by birds and mammals distributing seed attached to their bodies or in their droppings or through dumped domestic garden waste. Other garden escapes originate from abandoned gardens, graveyards and commercial waste disposal sites (Randall 2002).

Hibbert (2002) is derived from catalogues of individual nurseries. It lists about 30 000 garden plants that are "hard to find" and the nurseries or seed suppliers from where they can be purchased. Hibbert distinguishes between species widely available for sale (those "available from many nurseries") and those available for sale (presumably those available from only one or a few nurseries). It lists 411 suppliers (380 nurseries and 31 seed suppliers) in all states and mainland territories.

Results

Of the 720 naturalised invasive and potentially invasive garden plants, over half (54.6%) were recorded as available for sale (Hibbert 2002), a quarter (24.7%) are declared noxious, and a tenth (72) (or 40.4% of all declared invasive garden plants) are declared noxious but available for sale in other states or territories where the garden plant is not declared. Table 5 presents further data by state or territory on this aspect.

The states where the biggest range of naturalised invasive and potentially invasive garden plants in Australia are available for sale are NSW (38.8% to total number of naturalised garden plant species in Australia) and Victoria (32.8%) followed by Queensland (20.3%) and Western Australia (16.5%).

Of concern is that 4 out of 10 (40.4%) of the invasive garden plants declared noxious in at least one or more states and territories remain for sale somewhere else in Australia. This availability allows for the potential movement of noxious weeds around the country and to areas where they may also become invasive.

States and territories generally have low rates of prohibiting for sale those invasive and potentially invasive garden plants naturalised in their respective jurisdiction. ACT is by far the weakest jurisdiction with 0.0% followed by Western Australia with 9.9%, Victoria with 11.2%, and Tasmania with 14.5%. The best performing State and Territory was the Northern Territory, which prohibited the sale of about 4 out of every 10 (41.3%) of the invasive garden plant species naturalised in its jurisdiction, followed by Queensland with 22.2%.

Table 5. Naturalised invasive and potentially invasive garden plants and their noxious status and availability or prohibition from sale, both nationally and by jurisdiction

Jurisdiction	Naturalised		Declared Noxious		Available for Sale		Declared Noxious and Available for Sale		Naturalised and Prohibited for Sale in Jursdiction	
	No.	%	No.	%	No.	%	No.	%	No.	%
Australia	720	100.0	178	24.7	393	54.6	72	40.4	153	21.3
NSW	205	28.5	99	13.8	279	38.8	36	36.7	37	18.0
QLD	158	22.0	57	7.9	146	20.3	20	35.1	35	22.2
SA	161	22.5	66	9.7	79	11.0	19	28.8	31	19.3
TAS	152	21.0	51	7.1	126	17.5	16	31.4	22	14.5
VIC	409	57.0	60	8.3	236	32.8	18	30.0	46	11.2
WA	314	44.0	171[6]	23.8	119	16.5	69	40.4	31	9.9
ACT	104	14.5	23	3.2	33	4.6	6	26.1	0	0.0
NT	63	9.0	42	5.8	75	10.4	13	31.0	26	41.3

Notes

1 Number naturalised includes all listed taxa (genera, species, sub-species) that are recorded as naturalised in jurisdiction. Percentage is portion of Australian total, and is rounded to nearest 0.5% (Randall and Kessal 2004).

2 Declared noxious refers to taxa that are declared noxious under relevant State/Territory government legislation in respective jurisdiction. The Australian total refers to the number of taxa that are declared noxious in at least one State or Territory jurisdiction. Percentage is portion of total naturalised invasive

plants that are declared noxious in respective jurisdiction (AWC January, 2004). The NSW figure includes regional declarations, and these listed species may be available for sale in non-control regions.

3 Available for Sale refers to the number of plant species and taxa that are recorded for sale in Hibbert (2002). It includes number of species recorded as available for sale in the respective jurisdiction plus the 33 species and taxa recorded as 'widely available' (it is assumed that 'widely available' plants are available in all States and Territories). For example, in South Australia 46 species and taxa are recorded as available, which when added to the 33 widely available species and taxa results in a total of 79. Percentage is portion of total naturalised invasive plants in Australia that are recorded as available for sale in respective jurisdiction. No nurseries from the ACT are included in Hibbert (2002) and as such the ACT figure only includes the 33 species and taxa recorded as 'widely available'.

4 Declared noxious and available for sale refers to species and taxa that are declared noxious in one jurisdiction while being available for sale in another jurisdiction. Percentage is portion of declared plants in jurisdiction that are also available for sale in at least one Australian State or Territory.

5 Naturalised and Prohibited for Sale in Jurisdiction refers to species and taxa that are both naturalised and prohibited in the respective jurisdiction. Percentage is portion of invasive garden plant species that are naturalised in jurisdiction that are prohibited for sale.

6 This includes those species that are both declared noxious or unassigned. Unassigned species are subject to a weed risk assessment if importation into the State is sought.

Sources: Randall and Kessal (2004); Australian Weeds Committee (2004); Hibbert (2002)

This chapter also determines the numbers of invasive garden plants available for sale by specific categories of invasive plants as introduced in Chapter 2. Additionally, the number of invasive garden plants that are considered by a grazing industry report as nationally significant is also calculated. The findings are summarised in Table 6 below.

Table 6. Summary of those commercially available naturalised invasive and potentially invasive garden plants that are major weeds or impact on biodiversity or agriculture

	Major Weeds			Biodiversity			Agriculture	
	Impact – major weeds	Control – major weeds	Quarantine	Impact on Biodiversity	Alert/Eradication		Impact on Agriculture	
	World's Worst Alien Species	Weeds of National Significance	Northern Australia Quarantine Strategy Target Weed List	ROTAP	Alert List	National eradication target – natural ecosystems	Weeds of greatest significance to grazing industries	Emerging weeds that are potential problems for the grazing industry
Number of listed invasive plants	36	20	41	49	28	34	48	24
Number and % of which are 'sleeper' garden plants	0 (0.0%)	0 (0.0%)	1 (2.4%)	0 (0.0%)	5 (17.6%)	4 (11.8%)	0 (0.0%)	0 (0.0%)
Number and % of which are available for sale	0 (0.0%)	0 (0.0%)	1 (2.4%)	0 (0.0%)	2 (7.1%)	1 (2.9%)	0 (0.0%)	0 (0.0%)
Number and % of which are naturalised garden plants	20 (55.6%)	16 (80.0%)	0 (0.0%)	28 (57.1%)	11 (39.3%)	6 (17.6%)	20 (41.7%)	13 (54.2%)
Number and % of which are available for sale	9 (25.0%)	5 (25.0%)	0 (0.0%)	10 (20.4%)	4 (14.3%)	3 (8.8%)	4 (8.3%)	8 (33.3%)

The table also includes 'sleeper' garden plants, which have been excluded from our analysis, but to provide a fuller picture are also presented (see also Glanznig *et al* 2004a).

The NAQS target list contains 41 species of which three (*Equisetum ramosissimum, Salvinia cucullata* or *S. natans*) are listed by Randall & Kessal (2004) as garden plants by virtue of generic listing to encompass all species in the genera *Equisetum* and *Salvinia.* None of the species was listed as available for sale (Hibbert 2002). A 'sleeper' NAQS target weed, *Rhodomytus tomentosa* (Ceylon hill cherry), however, is recorded as for for sale (Hibbert 2002). As there are no naturalised NAQS species that are naturalised garden plants, this category is not analysed further below.

(a) MAJOR WEEDS

Methods

Nine expert weed scientists were provided with the list of naturalised invasive garden plants recorded for their state or territory by Randall & Kessal (2004). In the case of the Northern Territory, two experts were selected, one to cover the tropical 'Top End' and the other the arid centre. They were all asked to indicate the ten most invasive naturalised species on their list that were for sale currently. Each expert was also asked if they wished to nominate non-invasive garden plants currently available in the nursery trade as substitutes for their nominated invasive species.

To be eligible for nomination, a species had to be available for sale, be naturalised and a garden plant (see definitions earlier). Where a species is prohibited from sale, we assumed that prohibition to be effective. This assumption eliminated some prohibited common weeds from nomination.

The state or territory lists provided to each expert contained the species name, whether it was declared noxious or prohibited from sale, and whether it was 'widely available' or 'available' for sale based on Hibbert (2002) (see earlier).

Results

National analysis

Of the ninety species nominated by experts (10 for each state and the ACT and 20 from NT), 12 occurred on more than one list. Two of these species, each nominated twice, were of economic importance as plantation species, namely Radiata pine (*Pinus radiata*) and Olive (*Olea europaea*). Both these species, together with Neem (*Azadarichta indica*) nominated for the tropical Top End of NT, are planted on a large scale in rural areas abutting native bushland and clearly present a management problem different from that of the remaining ten species (see p. 59 for discussion). The ten most important species currently sold by nurseries (Table 7) together cover the range of plant forms, i.e. trees, shrubs, climbers, palms, grasses and herbs.

All but two experts chose not to nominate substitutes on the basis of uncertainty about whether a species may become invasive in the longer term. As one expert wrote:

> *I urge you to avoid nominating 'safe' alternatives unless you can be absolutely sure there is no weed risk. As you well know, plants promoted as safe for one area are often transported into other areas where they can become a significant problem…Any species suggested would have to have a weed risk assessment prepared for it.*

Accordingly, alternative 'non-invasive' species are not given for these top ten invasive plants currently being sold by Australian nurseries.

Table 7. The ten most serious invasive garden plants in Australia currently available for sale by nurseries

Common name	Species name	Life form	Nominated for
Asparagus fern	*Asparagus scandens*	Herbaceous climber	Tas., Vic.
Broom	*Cytisus* spp.	Shrub	ACT, NSW, Tas.
Fountain grass	*Pennisetum setaceum*	Grass	SA, arid NT
Gazania	*Gazania* spp.	Herb	SA, Vic.
Glory lily	*Gloriosa superba*	Herbaceous climber	NSW, Qld
Hybrid mother of millions	*Bryophyllum daigremontianum X B. delagoense*	Succulent herb	NSW, arid NT
Japanese honeysuckle	*Lonicera japonica*	Woody climber	ACT, Qld
Pepper tree	*Schinus molle (= S. areira)*	Tree	Vic., arid NT
Periwinkle	*Vinca major*	Herbaceous creeper	SA, Vic.
Sweet pittosporum	*Pittosporum undulatum*	Tree	WA, Tas.

A description of each species in alphabetical order by common name is given in the Fact Sheets that follow.

1. ASPARAGUS FERN

Nominated for Tasmania, Victoria

Asparagus scandens
Family: Asparagaceae

Native to South Africa

Other common names:
Myrsiphyllum, Climbing asparagus

T.Rudman

A perennial climber or scrambler with stems to 2.5m tall. Small leaves are usually in threes and stems are many-branched. Separate male and female plants. The females produce bright orange berries which may remain on the plant from one season to the next. Tuberous roots form a dense underground mat. It is similar to Bridal creeper, *Asparagus asparagoides*, a major weed in all states and Asparagus fern, *Asparagus densiflorus*, which has been declared a noxious weed on Lord Howe Island.

Asparagus scandens is invading NSW, SA, Tas and Victoria. It is localised in Tasmania but has established some very dense infestations over large areas, e.g. at Bridport, often found in association with Bridal creeper (Rudman, T. 2004, pers. comm.). It also occurs in Victoria in a number of coastal and inland areas (Blood, K. 2004, pers. comm.).

All variants of Asparagus fern form dense tangles which smother other plants; it grows successfully in low light.

Seed is spread by birds and other animals. Tubers, which are long-lived, are spread in garden waste.

References:
Blood, K. (2001). *Environmental Weeds. A Field Guide for SE Australia*. C.H. Jerram & Associates-Science Publishers, Mt Waverley, Victoria.
Blood, K., Department of Primary Industries, Beaufort, Victoria.
Csurhes, S. and Edwards, R. (1998). *Potential Environmental Weeds in Australia*. National Weeds Program, Environment Australia, Canberra.
Rudman, T., Department of Primary Industries, Water & Environment, Hobart, Tasmania.

2. BROOM

Nominated for NSW, ACT, Tasmania

Cytisus spp.
Family: Fabaceae

Native to Europe and Asia

T.Rudman

The genus *Cytisus* contains 33 species of evergreen or deciduous shrubs or small trees without thorns. Scotch broom, *Cytisus scoparius*, and its different forms are the most commonly planted species. Shrub or small tree growing to 4m tall. Flowers are pea-shaped, of various colours and borne prolifically. Fruits are flattened pods which split on hot days and explosively expel the seeds which are spread in mud attached to vehicles, animals and footwear or by siltation along watercourses, contaminated soil and ants.

Seed levels for *Cytisus scoparius* in the soil are often high, up to 11,000 seeds per sq m have been recorded at Barrington Tops and 20,000 per sq m near Braidwood, NSW (Hosking, J.R. 2004, pers. comm.). Germination is encouraged by fire.

In Australia, *Cytisus scooparius* occupies about 200,000 hectares in the ACT, NSW, Tasmania, SA, Victoria and WA and competes with native shrubs and understorey plants. It also invades pastures, forests and plantations. In Tasmania it is common around Hobart (Rudman, T. 2004, pers. comm.). It is one of 49 naturalised non-native species which are having a direct impact on native rare and threatened species (Groves *et al.* 2003). Also invasive in New Zealand, India, South Africa, Canada, USA including Hawaii. Other invasive *Cytisus* species recorded in Australia include *C. multiflorus.*

References:

Blood,K. (2001). *Environmental Weeds. A Field Guide for SE Australia*. C.H.Jerram & Associates-Science Publishers, Mt Waverley, Victoria.
Csurhes, S. and Edwards, R. (1998). *Potential Environmental Weeds in Australia*. National Weeds Program, Environment Australia, Canberra.
Groves, R.H. *et al.* (2003). *Weed Categories for Natural and Agricultural Ecosystem Management*. Dept. of Agriculture, Fisheries and Forestry, Canberra.
Hosking, J.R., Dept. of Agriculture, Tamworth, NSW.
Rudman, T. Flora Protection Officer, Dept. Primary Industries, Water & Environment, Hobart, Tasmania.

3. FOUNTAIN GRASS

Nominated for SA, arid NT

Pennisetum setaceum
Family: Poaceae

Native to north east Africa

Other common names: Tender fountain grass, African fountain grass

R. Cousens

A densely tufted perennial grass growing to 1m. The flowerhead is a long feathery spike which makes it attractive for garden cultivation. It spreads by seed, transported by wind and water or carried on clothing and in dumped garden waste.

It has been listed as a weed in Hawaii, the United States and South Africa. It is banned in New Zealand. Fountain grass is naturalised in NSW, Queensland, SA, Victoria, WA,NT.

In South Australia it is naturalised and weedy, particularly on Eyre Peninsula. It is still sold as an ornamental and is popular in home gardens (Cooke, D. 2004, pers. comm.).

References:
Blood, K. (2001). *Environmental Weeds. A Field Guide for SE Australia.* C.H.Jerram & Associates-Science Publishers, Mt Waverley, Victoria.
Csurhes, S. and Edwards, R. (1998). *Potential Environmental Weeds in Australia*. National Weed Program, Environment Australia, Canberra.
Cooke, David, Senior Weed Science Officer, Animal and Plant Control Commission, South Australia.

4. GAZANIA

Nominated for SA, Victoria

Gazania spp.
Family: Asteraceae

Native to South Africa. Many hybrids have been developed for cultivation which makes identification difficult.

Other common names: Treasure flower

R. Boden

Gazania is a tough low-growing perennial herb to 300mm tall with lance-shaped leaves and brightly coloured daisy-like flowers in bronze, yellow and orange tones. It produces abundant wind-blown seeds and spreads rapidly. It also spreads vegetatively. It withstands salt-laden winds and grows well in sandy soils. It is often spread in garden waste.

Gazania linearis and *G. rigens* and hybrids between them are commonly available in nurseries. The two parent species are naturalised in all states and the Northern Territory but identification is often confused. Coastal Gazania, *G. rigens*, has become naturalised on coastal dunes and along roadsides from southern Sydney to the NSW central coast and in the Moreton region of south-east Queensland. *Gazania* spp. are common on Victorian roadsides (Blood, K. pers. comm. 2004).

In South Australia, cultivars, apparently hybrid, of *G. linearis* are very commonly sold by garden centres and supermarkets. Rural landholders often plant them on roadsides outside their farms. They encroach by wind-blown seed into coastal scrub and inland mallee, and seem to be just starting their spread. *G. rigens* is less frequently sold, and is only naturalised on coastal dunes (Cooke, D. 2004, pers. comm.).

References:
Blood, K. (2001). *Environmental Weeds A Field Guide for SE Australia*, C.H. Jerram & Associates-Science Publishers, Mt Waverley Victoria.
Blood, K. Department of Primary Industries, Beaufort, Victoria.
Cooke, D., Animal and Plant Control Commission, South Australia.

5. GLORY LILY

Nominated for NSW, Queensland

Gloriosa superba

Family: Liliaceae

Native to Africa

C. Wilson

Glory lily is an herbaceous annual climber with subterranean, perennial tubers and red and yellow flowers. It has been cultivated as a garden ornamental for many years. It is propagated by division or seed which may remain dormant for 6-9 months.

The plant contains alkaloids similar to colchicine and has been recorded as a cause of poisoning in humans (Everist, 198l). The rootstock is believed to be more toxic than other parts of the plant.

Glory lily forms dense understorey carpets in coastal dune systems competing strongly with native flora. It colonises bare soil after Bitou bush, (*Chrysanthemoides monilifera* spp. *rotundata*) control.

Glory lily was identified as naturalised at Caloundra in south-east Queensland in 1950 and in NSW in 1972. It is now a serious weed on Moreton Island and along the North Coast of NSW and is recorded in North Queensland and central Queensland (Batianoff, G. and Hosking, J. R. 2004, pers.comm.). It also occurs in Victoria (Blood,K. pers.comm.).

Four cultivars have been described (Parker and Malone 2003); it is listed for sale in nurseries in Queensland, Northern Territory, and Victoria.

References:
Batianoff, G. Queensland Herbarium, Environmental Protection Agency, Brisbane Botanic Gardens, Brisbane, Queensland.
Blood, K. Department of Primary Industries, Beaufort, Victoria.
Everist, S.L. (1981). *Poisonous Plants of Australia*. Angus & Robertson Publishers, Sydney.
Hosking, J. R. Dept. of Agriculture, Tamworth, NSW.
Parker, J. and Malone, M. eds. (2003). *Gardening Australia: Flora: the Gardener's Bible over 20,000 plants.* ABC Books, Sydney.

6. HYBRID MOTHER OF MILLIONS

Nominated for NSW, arid NT

Bryophyllum daigremontianum
x Bryophyllum delagoense cv. 'Hougtonii'
(B. delagoense = B. tubiflorum)
Family: Crassulaceae

Horticultural origin

J. Hosking

Bryophyllums are succulent perennial herbs with fleshy mottled stems and leaves. Flowers are orange, yellow or red on stalks held above the foliage. Plants may form on the parent plant or regrowth may occur from tiny leaves or stems on the ground.

Spread by plantlets carried by water in streams and rivers and by plantlets attached to animals and in mud also in dumped garden waste. Virtually no seed is produced (Hosking, J.R. 2004, pers.comm.).

The hybrid is widespread in south east Queensland but is not as common as one of the parents (*B. delagoense)*. Locally common in northern NSW where it grows near houses or where dumped as garden waste. Also spreading along watercourses. Plants, particularly flowers, are poisonous to stock.

This plant may be sold under the former name of Kalanchoe.

References:
Hosking, J.R., Dept. of Agriculture, Tamworth, NSW.

7. JAPANESE HONEYSUCKLE

Nominated for ACT, Queensland

Lonicera japonica
Family: Caprifoliaceae
Native to east Asia

Other common names: Chinese honeysuckle, Gold and silver flower, Hall's honeysuckle

B. Auld & R. Medd

Japanese honeysuckle is a woody, twining evergreen climber growing up to 10m tall as a scrambler over other plants and buildings. Leaves are light green, about 30 to 70mm long. Branches are hairy when young and will root wherever they touch the ground. Cream to yellow-white flowers are borne in pairs near branch tips. They are sweetly scented as the common name suggests and Japanese honeysuckle is often grown for this feature. Seeds are contained in a shiny black berry about 6-10mm long which is poisonous to humans but eaten by birds who spread the seeds widely. Seeds are also spread in water and dumped garden waste.

Young Japanese honeysuckle plants take some time to become established as they develop a strong taproot before the shoots grow significantly. Once established and entwined in other plants it is very difficult to remove.

It is invasive in New Zealand, Britain, Canada, Argentina and USA.

First naturalised in south-east Queensland in 1910, now becoming a weed of the Darling Downs, particularly in the Stanthorpe district, Moreton and Wide Bay Districts (Batianoff, G. 2004, pers. comm.). It is naturalised in the ACT where it occurs in woodland and riverine areas near Canberra. It is invasive in all states but not the NT. It is sold in nurseries and at markets as it is easy to propagate.

References:
Batianoff, G. Queensland Herbarium, Environmental Protection Agency, Brisbane Botanic Gardens, Brisbane, Queensland.
Berry, S. and Mulvaney, M. (1995). *An Environmental Weed Survey of the Australian Capital Territory*. Conservation Council of the South-east Region and Canberra.
Blood, K. (2001). *Environmental Weeds. A Field Guide for SE Australia*, C.H. Jerram & Associates-Science Publishers, Mt Waverley Victoria.

8. PEPPER TREE

Nominated for Victoria, arid NT

Schinus areira
= Schinus molle var. *areira*

Family: Anarcardiaceae
Native to northern South America
to Mexico

Other common names: Californian pepper tree, Peppercorn tree, Peruvian mastic tre, Pepperina

Pepper tree is a large spreading tree growing to a height of 12m. It has drooping fern-like leaves with many leaflets which are aromatic when crushed. Flowers hang in clusters with male and female flowers on separate plants. Flowers on the female trees develop into bright pink berries with a hard seed which germinates well when passed through the guts of birds and other animals. Many seeds are stored in the soil.

Mature trees are resistant to fire and drought and are able to sprout from the rootstock if damaged.

Pepper tree is invasive in New Zealand, South Africa and USA. In Australia it is invasive in NSW, NT, Qld, SA, Vic and WA.

Pepper tree is widely planted in homestead gardens and stockyards in dry areas of NSW, Victoria, South Australia and the Northern Territory. It has invaded a range of vegetation types including lowland grassland and woodland and dry forest. It has been reported as spreading in riparian vegetation near Warwick in south-east Queensland and in old settlements in the Western Australian Goldfields region.

It is native to South America and has been planted as a street tree in southern Europe.

Pepper tree was listed for sale in nursery catalogues in Victoria in the 1870s and 1880s and is still available for sale from many nurseries.

References:
Blood, K. (2001). *Environmental Weeds. A Field Guide for S E Australia,* C.H. Jerram & Associates-Science Publishers, Mt Waverley, Victoria.
Brookes, M. and Barley, R. (1992). *Plants Listed in Nursery Catalogues in Victoria 1855-1889.* Ornamental Plants Collections Association, Melbourne.

9. PERIWINKLE

Nominated for South Australia, Victoria

Vinca major
Family: Apocynaceae

Native to western parts of the Mediterranean

Other common names: Blue periwinkle, Vinca, Sorcerer's violet

B. Auld & Medd

Periwinkle is a perennial evergreen creeper which grows up to 500mm tall with stems 1-2m long. It has dark green, opposite leaves on arching stems and can form large, dense mats often covering many square metres. Flowers, borne singly, are bright blue/mauve in colour. Used in horticulture as a hardy ground cover but it often spreads and is dumped with other garden waste. It is also spread in water (including watercourse flooding) and contaminated soil.

Periwinkle was a common plant in Victorian nursery catalogues in the mid- to late 19th century and is still popular and often sold at markets and garden fetes because it is so easy to propagate.

Periwinkle is toxic to some stock. It tolerates any soil, drought, excessaive moisture,frost, sun shade and salt. It is a serious weed along the Snowy and Tambo rivers in East Gippsland, Victoria. It is a weed in higher rainfall parts of South Australia, and is extremely difficult to control (Cooke, D. 2004, pers. comm.).

It is invasive in New Zealand, United Kingdom, South Africa and USA. It is naturalised in all Australian states and the ACT.

Vinca major is related to weedy Madagascar periwinkle, *Catharanthus roseus*, which has been nominated as one of the worst ten weeds in cultivation in Queensland. The related Lesser periwinkle, *Vinca minor*, is native to northern Europe, the Caucasus and southern Russia. It has smaller leaves and is less vigorous than Periwinkle but is also a problem in some places.

References:
Blood, K. (2001). *Environmental Weeds. A Field Guide for SE Australia*. C.H. Jerram & Associates-Science Publishers, Mt Waverley, Victoria.
Cooke, David, Senior Weed Science Officer, Animal and Plant Control Commission, South Australia.

10. SWEET PITTOSPORUM

Nominated for WA, Tasmania

Pittosporum undulatum
Family: Pittosporaceae
Native to NSW and
far eastern Vic.

T. Rudman

Other common names: Australian Cheesewood, Victorian box, Mock orange, Native daphne

A tall shrub or small tree growing to a height of 14m and a spread of 6m. Native to wet forests in coastal areas between the Great Dividing Range and the sea from southern Victoria to southern Queensland. It has shiny dark green paler beneath, oval leaves with wavy edges which give it its specific name. Creamy-white, sweetly scented flowers are followed by clusters of orange fleshy fruit about 13mm long. The fruits are attractive to birds and other animals including posums and foxes. It also spreads in dumped garden waste and contaminated soil and seeds stick to footwear.

Sweet pittosporum is invasive in New Zealand, South Africa and USA. It is a serious weed problem outside its natural range in SA, Tasmania, Victoria and WA. It is a weed on King, Lord Howe and Norfolk islands. It is a serious weed in the Sydney district in areas where it does not occur naturally and on the NSW mid-north coast.

Pittosporum undulatum, commonly mistaken as a native in Tasmania, appears to hybridise with *P. bicolor* in Tasmania. It is invasive in coastal areas. Control of dispersal is difficult (Rudman, T. 2004, pers. comm.).

Pittosporum affects natural environments through shading, competition and changes in soil nutrients. Changes in fire regimes has allowed Sweet pittosporum to out-compete fire-adapted native species.

References:
Blood, K. (2001). *Environmental Weeds. A Field Guide for SE Australia*. C.H. Jeram & Associates-Science Publishers, Mt Waverley, Victoria.
Hussey, B.M.J., Keighery, G.J., Cousens, R.D., Dodd, J., and Lloyd, S.G. (1997). *Western Weeds*. Plant Protection Society of Western Australia, Perth.
Rudman, T., Department of Primary Industries, Water & Environment, Hobart.

State and Territory nominations

1. New South Wales.

The ten most important species (Table 8) available for sale in New South Wales, including Lord Howe Island, were chosen from the total list on the basis of those that are not already widespread in the wild. On this basis, eight major invasive species of garden origin (namely, *Cabomba caroliniana, Chrysanthemoides monilifera, Ipomoea* spp., *Lantana camara, Ligustrum lucidum, Ligustrum sinense, Lonicera japonica* and *Olea europaea*) were eliminated from consideration as they are believed to be close to the limits of their ranges in New South Wales.

Of the 720 naturalised garden plant species in Australia, 279 (38.8%) are available for sale in NSW (see Table 5). Of the 205 naturalised garden plant species in NSW, only 37 (18%) are prohibited for sale in the state. Of the 99 garden plants naturalised in Australia and/or NSW that are declared noxious, 36 (36.7%) are available for sale in other jurisdictions.

Table 8. The ten most serious invasive garden plants currently available for sale by nurseries in New South Wales

Common name	Species name
Banana passion fruit	*Passiflora tarminiana* (= *P. mollisima*)
Broom	*Cytisus scoparius*
Cat's claw creeper	*Macfadyena unguis-cati*
Glory lily	*Gloriosa superba*
Holly leafed senecio	*Senecio glastifolius*
Hybrid mother of millions	*Bryophyllum daigremontianum X B. delagoense*
Lippia	*Phyla canescens*
Madeira vine	*Anredera cordifolia*
Mother of millions	*Bryophyllum delagoense*
Yerba de hicotea	*Hygrophila costata*

Fact sheets on each of these species are included in Appendix 2.

2. Queensland.

The ten most serious invasive garden plants currently being sold by Queensland nurseries are listed alphabetically by common name in Table 9.

Of the 720 naturalised garden plant species in Australia, 146 (20.3%) are available for sale in Qld (see Table 5). Of the 158 naturalised garden plant species in Qld, only 35 (22.2%) are prohibited for sale in the state. Of the 57 garden plant species naturalised in Australia and/or Qld that are declared noxious in Qld, 20 (35.1%) are available for sale in other jurisdictions.

Table 9. The ten most serious invasive garden plants currently available for sale by nurseries in Queensland

Common name	Scientific name
Coreopsis	*Coreopsis lanceolata*
Glory lily	*Gloriosa superba*
Guava	*Psidium guajava* & *P. guineense*
Japanese honeysuckle	*Lonicera japonica*
Mickey Mouse plant	*Ochna serrulata*
Murraya	*Murraya paniculata* cv. *exotica*
Parrot's feather	*Myriophyllum aquaticum*
Pink periwinkle	*Catharanthus roseus*
Taro	*Colocasia esculenta*
Yellow allamanda	*Allamanda cathartica*

Fact sheets on each of these species are included in Appendix 2.

3. South Australia.

The ten most serious invasive garden plants available for sale in South Australia are given in Table 10.

Of the 720 naturalised garden plant species in Australia, 79 (11.0%) are available for sale in SA (see Table 5). Of the 161 naturalised garden plant species in SA, only 31(19.3%) are prohibited for sale in the state. Of the 66 garden plants naturalised in Australia and/or SA that are declared noxious, 19 (28.8%) are available for sale in other jurisdictions.

Table 10. The ten most serious invasive garden plants available for sale in South Australia

Common name	Species name
Aleppo pine	*Pinus halepensis*
Desert ash	*Fraxinus angustifolia*
Fountain grass	*Pennisetum setaceum*
Gazania	*Gazania linearis* hybrids
Golden wreath wattle	*Acacia saligna*
Kikuyu grass	*Pennisetum clandestinum*
Olive	*Olea europaea*
Periwinkle	*Vinca major*
Topped lavender	*Lavandula stoechas*
Weeping willow	*Salix babylonica*

Fact sheets on each of these species are presented in Appendix 2.

4. Tasmania.

The ten most serious invasive species available for sale in Tasmania are given in Table 11.

There are also a number of invasive species native to mainland Australia that need to be addressed regionally, of which the most problematic are *Grevillea rosmarinifolia, Acacia pycnantha* and *Sollya heterophylla* in dry forests, grassy or heathy ecosystems.

Of the 720 naturalised garden plant species in Australia, 126 (17.5%) are available for sale in Tas (see Table 5). Of the 152 naturalised garden plant species in Tas, only 22 (14.5%) are prohibited for sale in the state. Of the 51 garden plants naturalised in Australia and/or Tas that are declared noxious, 16 (31.4%) are available for sale in other jurisdictions.

Table 11. The ten most serious invasive garden plants available for sale in Tasmania

Common name	Species name
Asparagus fern	*Asparagus scandens*
Blue psoralea	*Psoralea pinnata*
Broom	*Cytisus scoparius* cultivars
Cape Leeuwin wattle	*Paraserianthes lophantha*
Himalayan honeysuckle	*Leycesteria formosa*
Holly	*Ilex aquifolium*
Looking glass bush	*Coprosma repens*
Radiata pine	*Pinus radiata*
Sweet pittosporum	*Pittosporum undulatum*
Tree heath	*Erica arborea*

Fact sheets on each of these species are presented in Appendix 2.

5. Victoria.

The ten most important garden plants currently for sale in Victoria are listed in Table 12.

Of the 720 naturalised garden plant species in Australia, 236 (32.8%) are available for sale in Vic (see Table 5). Of the 409 naturalised garden plant species in Vic, only 46 (11.2%) are prohibited for sale in the state. Of the 60 garden plants naturalised in Australia and/or Vic that are declared noxious, 18 (30.0%) are available for sale in other jurisdictions.

Table 12. The ten most serious invasive garden plants available for sale in Victoria

Common name	Species name
African lovegrass	*Eragrostis curvula*
Asparagus fern	*Asparagus scandens*
Gazania	*Gazania* spp. (fertile species or cultivars, varieties)
Horsetails*	*Equisetum* spp.
Oxalis	*Oxalis* spp.
Pepper tree	*Schinus areira (= S. molle)*
Periwinkle	*Vinca major*
Prickly pear	*Opuntia* spp.
Spanish heath	*Erica lusitanica*
White tussock*#	*Nassella tenuissima*

*not yet widespread but important potential weeds; #not known to be naturalized as yet.

Fact sheets on these species are appended (Appendix 2).

6. Western Australia.

The ten most important garden plants currently for sale in southern Western Australia are listed in Table 13.

Of the 720 naturalised garden plant species in Australia, 119 (16.5%) are available for sale in WA (see Table 5). Of the 314 naturalised garden plant species in WA, only 31 (9.9%) are prohibited for sale in the state. Of the 171 garden plants naturalised in Australia and/or WA that are declared noxious or a quarantine weed in WA, 69 (40.4%) are available for sale in other jurisdictions.

Table 13. The ten most serious invasive garden plants available for sale in southern Western Australia

Common name	Species name
Arum lily	*Zantedeschia aethiopica*
Black flag	*Ferraria crispa*
Broadleaf pepper tree	*Schinus terebinthifolius*
Coastal tea tree	*Leptospermum laevigatum*
Freesia	*Freesia alba x leichtlinii*
Spotted gum	*Eucalyptus maculata*
Sweet pittosporum	*Pittosporum undulatum*
Sydney golden wattle	*Acacia longifolia*
Watsonia	*Watsonia* spp.
Weeping white broom*	*Retama raetum*

*not yet widespread weed

Fact sheets on these ten species are appended in Appendix 2.

7. Australian Capital Territory.

The ten most important garden plants currently for sale in the ACT are listed in Table 14.

Of the 720 naturalised garden plant species in Australia, 33 (4.6%) are available for sale in the ACT (see Table 5). Of the 104 naturalised garden plant species in the ACT, none (0.0%) prohibited for sale in the territory. Of the 23 garden plants naturalised in Australia and/or the ACT that are declared noxious, 6 (26.1%) are available for sale in other jurisdictions.

Table 14. **The ten most serious invasive garden plants available for sale in the Australian Capital Territory**

Common name	Species name
Black locust	*Robinia pseudoacacia*
Broom	*Cytisus* spp.
Broom	*Genista* spp.
Cotoneaster	*Cotoneaster* spp.
Firethorn	*Pyracantha* spp.
Japanese honeysuckle	*Lonicera japonica*
Lombardy poplar	*Populus nigra* 'Italica'
Olive	*Olea europaea*
Radiata pine	*Pinus radiata*
White poplar	*Populus alba*

Fact sheets on these ten species are appended (Appendix 2).

8. Northern Territory. The lists of the most important garden plants for the Top End of the Northern Territory and that for Central Australia are presented separately as Tables 15 and 16.

Of the 720 naturalised garden plant species in Australia, 75 (10.4%) are available for sale in the NT (see Table 5). Of the 63 naturalised garden plant species in the NT, 26 (41.3%) prohibited for sale in the territory. Of the 42 garden plants naturalised in Australia and/or the NT that are declared noxious, 13 (31.0%) are available for sale in other jurisdictions.

Table 15. The ten most serious invasive garden plants available for sale in the 'Top End' of the Northern Territory

Common name	Species name
African tulip	*Spathodea campanulata*
Candle bush	*Senna elata*
Clumping fishtail palm	*Caryotis nitis*
Golden shower	*Cassia fistula*
Neem	*Azadarichta indica*
Poinciana	*Delonix regia*
Rubbervine	*Cryptostegia grandiflora*
Snakeweeds	*Stachytarpheta* spp.
White teak	*Gmelina arborea*
Yellow bells	*Tecoma stans*

Table 16. The ten most serious invasive garden plants available for sale in arid Northern Territory

Common name	Species name
American cotton palm	*Washingtonia filifera*
Couch grass	*Cynodon dactylon*
Fountain grass	*Pennisetum setaceum*
Himalayan raintree	*Dalbergia sissoo*
Hybrid mother of millions	*Bryophyllum daigremontianum x B. tubiflorum*
Lead tree (Coffee bush)	*Leucaena leucocephala* subsp. *glabrata*
Mayne's pest	*Verbena aristigera (= V. tenuisecta)*
Pepper tree	*Schinus molle* var. *areira (=S. areira)*
Umbrella sedge	*Cyperus involucratus*
White cedar	*Melia azedarach*

Fact sheets on the species listed in both Tables 15 and 16 are appended (Appendix 2).

Discussion

Hibbert (2002) lists a total of 411 suppliers of garden plants (380 nurseries and 31 seed suppliers) in all states and mainland territories of Australia. The number of nurseries listed is about 12 % of all production nurseries in Australia (NGIA 2003; Table 17). Our use of Hibbert's list as the only indication of what is available for sale nationally must thus be qualified by the small sample size for the total. Another limitation, albeit a compensating one, of our use of Hibbert's list is its emphasis on "hard to find" plants rather than the common plants, such as roses, camellias, fruit trees and bedding plants which dominate the nursery trade. For example, potted roses accounted for 3.4%, bedding plants 10.1% and houseplants 9.1% of the sales of 'greenlife' products from production nurseries in 1996/97 (NGIA 2003).

Particular nurseries and their locations are listed by Hibbert (2002) because the book aims to provide readers with information that will enable them to buy a particular species. In our report we do not identify particular nurseries because of the view that the listing of a nursery does not mean that it is the only nursery selling a particular plant. We also took the view that, as many of the nurseries listed in Hibbert (2002) are wholesale, the plants they stock are likely to be available to retail nurseries generally. For example, the proportionally high number of nurseries in Queensland reflects to some extent cheaper production costs rather than higher demand. Many of the plants raised in Queensland nurseries are actually sold in the southern states.

Table 17. Distribution of all production nurseries (NGIA 2003) compared to the distribution of nurseries used in this report (Hibbert 2002)

State/Territory	Number of production nurseries (NGIA 2003)	%	Number of nurseries in Hibbert (2002)	%
Australia	**3046**	**100.0**	**380**	**100.0**
New South Wales	1434	47.1	132	34.7
Queensland	751	24.7	65	17.1
South Australia	230	7.6	25	6.6
Tasmania	114	3.8	20	5.3
Victoria	643	21.1	105	27.6
Western Australia	261	8.6	26	6.8
ACT	13	0.4	1	0.3
Northern Territory	20	0.7	6	1.6

The national analysis also raises two instructive points. The first is that some introduced plants grown in gardens are also used as plantation species. While commercially important, some of these plantation species are also environmental weeds that have environmental costs. The box below outlines the impacts of three of these species, radiata pine, olive and neem. The second point is that some native plants cultivated as garden plants are also invasive in areas outside their natural range. The box below highlights that the top ten list includes a native species, and that invasive garden plants are not only restricted to introduced plants.

Box 6: Plantation trees gone wild

Plantation species of economic importance which have escaped to become naturalised plants in natural areas pose special problems for weed management. Radiata pine *(Pinus radiata*), Olive *(Olea europaea*), Neem (*Azadarichta indica*) and Sand box tree (*Hura crepitans*) are two temperate and two tropical examples, respectively. More are likely to emerge as the growth of a wider range of food and fibre species is encouraged.

Radiata pine is the most commonly grown plantation species in Australia. Other plantation pine species include Cluster pine (*P. pinaster*) and Slash pine (*P. elliottii*) which are naturalised in Western Australia and Queensland respectively. Aleppo pine (*P. halepensis*) is not grown in plantations but is widely planted in rural areas and has been nominated as one of the top ten invasive garden escapes in South Australia (Table 10).

All pines have winged seeds which aid their dispersal into bushland where they compete with native species. Practically, it may never be possible to eliminate this dispersal while seed sources remain. Some hybrids, e.g. those between *Pinus elliottii* and *P. caribaea* being planted currently in Queensland, are reputed to be sterile and therefore not invasive and may offer a long-term solution to the increasing problem of feral pines.

Olive (*Olea europaea* and subspecies) was an early introduction to Australia and is now naturalised widely throughout southern regions. Its fruit are readily dispersed by birds and foxes. In the last 10 years over 7 million trees have been planted and with this expansion the potential for further dispersal into bushland has also increased. Olive is widely available for sale in nurseries. The only possible reduction in its spread depends on modern breeding techniques which could produce radically improved culivars with sterile seeds as well as superior fruit. The incentive for research to achieve these improvements lies almost certainly in the promise of higher oil yield rather than one of reduced weed potential.

Neem (*Azadarichta indica*) is another species whose useful properties have led to its cultivation in plantations with little appreciation that it may escape to become invasive. It is native to India, Myanmar and China where it has been cultivated for thousands of years for its medicinal properties. Soaps, toothpaste and medicines are derived from the tree's leaves, bark, flowers, sap and seed kernels. It also has insecticidal properties. Neem was planted as an ornamental tree around settlements and towns in the Northern Territory and was promoted as a plantation species throughout northern Australia in the 1970s and 80s. This material has now reached the fruiting stage and has considerable potential to spread. Its fleshy fruits are attractive to birds and there is evidence that plantings in riparian zones will result in spread for considerable distances downstream.

Box 7: Native plants outside their natural range can also be invasive

It isn't that I don't like
European trees.
Why, my great-grandfather came from…
Some of my best friends are…

But huddled together
in clumps and plantations
or lining the roads
like an official welcome
they look a bit lonely
slightly on guard, rather formal,
wishing the visit was over;

like the staff of an Embassy
at a party they don't really trust.

(Judith Wright, *Oaks etc,* 1976)

The emphasis on all things Australian and concern for the natural environment which occurred in the 1970s extended to widespread planting of native species in public and private gardens. Often this was done with little understanding of how native plants would perform in horticulture. If the plant occurred naturally somewhere in Australia it qualified for the term 'native' and was proudly grown. Some species failed while others were so successful they sometimes 'jumped' the garden fence and became naturalised in the bush. At that time it would have been un-Australian to call these species 'weeds'.

The position has now changed, partly due to the failure of some native species to perform well and because people now tend to like a plant for what it is rather than for its origin. Where there is an emphasis on native plants in public plantings currently it is usually on 'locally native', i.e. species that occur or previously occurred naturally in the area where it is to be planted. Some councils even require that plants be raised from seed or cuttings collected within their local region.

The list of the top ten invasive garden plants available for sale in southern Western Australia (Table 13) includes four native species, while that for Tasmania also includes the native *Pittosporum undulatum.* Australia's national floral emblem *Acacia pycnantha* is naturalised in Western and South Australia and widely available for sale. It is doubtful if its invasive potential was considered when it was proclaimed thus in 1988.

There will be further examples of plants native to Australia becoming weeds as more and more native species are planted in parks and gardens or used to revegetate areas adjoining nature reserves near Australian cities and towns, as well as in countries beyond Australia. If we accept that species native to Australia can become invasive there is no reason to distinguish between non-native and native species when developing management programs. To quote Low (1999) "whether gardeners grow Australian or foreign plants matters less than whether they grow invasive or benign plants".

National Analysis – international and national listed weeds

Methods

The list of the 100 World's Worst Invasive Alien Species (ISSG 2000) and the 20 naturalised species on the WONS list were analysed to determine those species that are both invasive in Australia and available for sale.

Results

World's Worst Invasive Alien Species List

The World Conservation Union's list of the 100 world's worst invasive alien species (ISSG 2000) includes 32 land plants and 4 aquatic plants. Of these 36 plants, 20 are included in Randall & Kessal's list and 9 are available for sale, i.e. one quarter of the total number (Table 18). Ten species are prohibited from sale in at least one state and nine of the 20 are declared noxious in at least one Australian state.

Table 18. Status of the *World's Worst Invasive Alien Species* that are invasive garden plants, their declared status (as of Jan. 2004), whether they are prohibited from sale and their availability for sale (Hibbert 2002)

Species (Common name)	Naturalised	Declared noxious	Prohibited from sale	Availability for sale
Arundo donax (Giant reed)	NSW,Vic,WA	NSW		NSW,Vic
Eichhornia crassipes (Water hyacinth)	Vic,NSW,Qld, NT,WA,ACT	Vic,NSW,Qld, SA,NT,WA, Tas,ACT	Vic,NSW,Qld, Tas,NT,WA	
Hedychium gardnerianum (Kahili ginger)	NSW			Qld,NSW, SA,Vic,NT WA
Lantana camara[1] (Lantana)	NSW,Qld,NT, WA	NSW,NT,SA, WA,Tas,NT	SA,Qld,Tas, NT	NT,WA, Vic
Leucaena leucocephala (Leucaena)	NT			
Ligustrum robustum[2] (Privet)	Vic,SA,NSW			
Mimosa pigra (Mimosa)	NT	Qld,WA,NT, SA	SA,Qld,NT, WA	
Opuntia stricta (Erect prickly pear)	Vic,NSW,Qld, WA	NSW,Qld,SA, NT,WA,Vic	Vic,NSW,Qld, NT,WA	
Pinus pinaster (Cluster pine)	Vic,SA,WA			Vic
Prosopis glandulosa (Mesquite)	Qld,WA	Qld,WA,SA, NT,Vic,NSW	Vic,NSW,Qld, NT,WA	

Schinus terebinthifolius[3] (Brazilian pepper tree)	NSW,Qld,WA,	NSW	Qld	Qld,NT
Spartina anglica[2] (Common cord grass)	Vic			
Spathodea campanulata (African tulip tree)	Qld,NT,		Qld	NT,WA
Tamarix ramosissima (Tamarisk)	NSW,Qld,WA			NSW,NT
Ulex europaeus (Gorse)	Vic,SA,NSW, Tas,WA,ACT	NSW,Vic,SA, WA,Tas,ACT	Vic,Qld,Tas, WA	
Wedelia trilobata (Wedelia)	Qld,NSW			NT,WA

[1]Prohibited from sale in NT since Hibbert (2002)
[2]Listed at generic level in Randall & Kessal (2004)
[3]Prohibited from sale in Qld since Hibbert (2002)

Weeds of National Significance

Weeds Of National Significance (WONS) are 20 species that have been identified nationally as causing significant environmental damage. Sixteen of the 20 WONS species are on the list of Randall & Kessal (2004) as invasive garden plants, of which 5 (25%) are available for sale (Hibbert 2002). These are *Annona glabra, Asparagus asparagoides, Lantana camara, Salix* spp. (*S. cinerea, S. purpurea* and *S. x sepulchralis* var. *chrysocoma)* and *Tamarix aphylla* (Table 19).

Table 19. Status of Weeds Of National Significance (WONS) that are invasive garden plants and currently available for sale

Species (Common name)	Naturalised in	Declared noxious	Prohibited from sale	Available for sale (Hibbert 2002)
Anona glabra (Pond apple)	Qld	SA,WA,Qld	SA,Qld	NSW
Asparagus asparagoides (Bridal creeper)	Vic,SA,NSW, Tas,WA	SA,Tas,NSW, WA,Qld	SA,Qld,Tas	NSW
Lantana camara (Lantana)	NSW,Qld,NT,WA	NSW,NT,SA,	SA,Tas,NT,Qld	WA,Vic
Salix spp. (Willow)				
S. cinerea	Vic,ACT	-	-	Vic
S. purpurea	ACT	-	-	Vic
X sepulchralis var. chrysocoma	NSW,ACT	-	-	NSW
Tamarix aphylla (Athel pine)	SA,NT,WA	NT,SA,WA, Qld	SA,Qld,Tas,NT	WA

(b) IN RELATION TO AUSTRALIAN BIODIVERSITY

Methods

The naturalised species on the Alert List of Environmental Weeds were analysed for their current availability for sale. Additionally, species listed in Tables 4 and 5 of Groves *et al.* (2003) were analysed in relation to being naturalised non-native species known to have a direct impact on natural ecosystems or on rare or threatened native plant (ROTAP) species.

Results

Alert List of Environmental Weeds

The National Alert List of Environmental Weeds identifies species that are in the early stages of establishment and have the potential to become a significant threat to biodiversity if they are not managed. This list includes 28 species of which 16 are included in Randall & Kessal (2004) and 11 are naturalised. Of these 11 species *Hieracium aurantiacum, Lachenalia reflexa, Thunbergia laurifolia* and *Tipuana tipu* are currently for sale (Hibbert 2002) (Table 20).

Table 20. Status of Alert List species that are currently available for sale (Hibbert 2002)

Species	Naturalised in	Declared noxious	Prohibited from sale	Available for sale (Hibbert 2002)
Hieracium aurantiacum (Orange hawkweed)	Vic, NSW,Tas	Vic, NSW, Tas, WA	Vic,NSW, Tas	Qld
Lachenalia reflexa (Lachenalia)	WA			Vic
Thunbergia laurifolia (Laurel clock vine)	Qld,NT	Qld, WA	Qld	NT
Tipuana tipu (Rosewood)	Qld			NSW,NT,Qld,Vic WA

Weeds that Impact on ROTAP species

Forty nine naturalised non-native species which impacted on ANZECC-rated rare or threatened native plant species were identified by Groves *et al.* (2003). Randall & Kessal (2004) listed 28 of these as garden plants of which ten (37%) were listed for sale (Hibbert 2002). These species (Table 21) are *Asparagus asparagoides, Babiana angustifolia, Cinnamomum camphora, Coffea arabica, Cytisus scoparius, Lantana camara, Myosotis sylvatica, Populus nigra* cv. Italica, *Romulea rosea* and *Watsonia marginata.* Four of these (*Asparagus asparagoides, Cinnamomum camphora, Cytisus scoparius* and *Lantana camara*) are declared noxious in the same states in which they are listed for sale by Hibbert (2002). In the case of NSW, this is due to regional declared weeds not being prohibited for sale throughout the jurisdiction (eg. bridal creeper).

Table 21. Status of species impacting on ROTAP species which are invasive garden plants and currently available for sale

Species	Naturalised in	Declared noxious	Prohibited from sale	Available for sale (Hibbert 2002)
Asparagus asparagoides (Bridal creeper)	Vic,NSW,SA, Tas,WA	SA,Tas,NSW WA,Qld	SA,Qld,Tas	NSW
Babiana angustifolia (Baboon flower)	Vic,SA,WA	-	-	Vic,Tas,NSW
Cinnamomum camphora (Camphor laurel)	NSW,Qld,WA	NSW,Qld,WA	NSW,Qld	WA
Coffea arabica (Coffee)	NSW,Qld	-	-	NSW,Qld,NT
Cytisus scoparius (Scotch broom)	Vic,SA,NSW, Tas	NSW,Vic,SA, Tas,WA,ACT	Tas, SA	WA,NSW,Vic
Lantana camara (Lantana)	NSW,Qld,NT, WA	NSW,NT,SA, WA,Tas,Qld	SA,Tas,NT, Qld	WA,Vic
Myosotis sylvatica (Woodland forget me not)	Vic,WA	-	-	Tas
Populus nigra cv. 'Italica' (Black poplar)	Vic,WA,ACT	-	-	NSW
Romulea rosea (Onion grass)	Vic,WA	-	-	Vic
Watsonia marginata (Bordered watsonia)	Vic,WA	-	-	Vic,Tas

National Eradication Target Weeds

Thirty four naturalised non-native species which impacted on natural ecosystems were identified by Groves *et al.* (2003), for which a national containment or eradication program was recommended. Six of these species are listed by Randall & Kessal (2004) as naturalised invasive garden plants, of which three are listed for sale. These are *Lachenalia reflexa, Thunbergia laurifolia* and *Tipuana tipu* (Table 22). Whilst *Thunbergia lauriflolia* is prohibited from sale in Queensland, where it is also declared noxious, it is still available for sale in the Northern Territory (Hibbert 2002).

Table 22. Status of invasive garden plants currently available for sale that are species recommended for eradication from natural ecosystems

Species (Common name)	Naturalised in	Declared noxious	Prohibited from sale	Available for sale (Hibbert 2002)
Lachenalia reflexa (Lachenalia)	WA	-	-	Vic
Thunbergia laurifolia (Laurel clock vine)	Qld,NT	Qld,WA	Qld	NT
Tipuana tipu (Rosewood)	Qld	-	-	NSW,NT,Qld, Vic,WA

Discussion

The results presented in Tables 20,21 and 22 clearly show that a number of invasive garden plants that are known to impact directly on native plants and natural ecosystems are currently available for sale from Australian nurseries. These results have serious implications for the biodiversity status of native plants and natural ecosystems in Australia. The availability for sale of those invasive garden plants is especially dire for those for which an eradication program was recommended. Money spent on an eradication program will be wasted if the same plants are still available for sale and potentially able to re-invade managed areas.

ISSG (2000) adopted two criterion in selecting species for their list of the Top 100 in the world, viz. their serious impact on biodiversity and/or human activities, and their illustration of important issues surrounding biological invasion. To ensure the inclusion of a wide variety of examples only one species from each genus was selected, so that absence from the list of 100 does not imply that another species poses a lesser threat.

At least four initiatives, both local and regional, have recently been productive in forging closer links between nurseries and weed scientists to prevent the sale of known invasive garden plants that are known to impact on natural ecosystems. For example, Ipswich and Logan shires near Brisbane have local "Bushland Friendly Nursery Schemes' in place, as does the regional NSW North Coast Weeds Advisory Committee (Anon. n.d.). A similar scheme has recently been launched for gardeners in the Greater Sydney District in conjunction with the NSW Nursery & Garden Industry (Anon. n.d.), the booklet for which suggests some native species to grow in the Sydney region as alternatives to invasive garden plants.

(C) WEEDS AVAILABLE FOR SALE IN RELATION TO AUSTRALIAN AGRICULTURE

Methods

The data based on the information available on naturalised species of agricultural significance in Groves *et al.* (2003) and in Randall & Kessal (2004) were examined in relation to grazing weeds identified as of most significance to the grazing industry in the report, *Weeds of Significance to the Grazing Industries of Australia*, jointly published by Meat and Livestock Australia and the Weeds CRC (Grice 2003). A selection of cropping weeds that are escaped invasive garden plant species were also identified.

Results

Nearly a fifth (19.6%) of the 720 naturalised invasive or potentially invasive garden plants are also primarily agricultural or ruderal weeds (refer Table 23).

Of the 141invasive garden plants that are primarily an agricultural or ruderal weed nearly half (44.0%) of invasive garden plants that are primarily agricultural or ruderal weeds are available for sale. By far the highest number of plant species were available for sale in NSW (45 or 31.9%) followed some way back by Queensland (19.1%) and Victoria (17.0%)

Over a quarter (26.2%) of those invasive garden plants that are primarily agricultural or ruderal weeds are declared noxious.

Of concern is the large number of declared invasive garden plants that are primarily agricultural or ruderal weeds that remain available for sale in other jurisdictions. The most affected states and territories are Queensland (50.0%), Western Australia (33.3%) followed by Victoria (26.3%), South Australia (25.0%) and Tasmania (25.0%).

Table 23. Naturalised invasive and potentially invasive garden plants that are primarily agricultural or ruderal weeds

Jurisdiction	Naturalised		Naturalised in Jurisdiction and Primarily Agricultural or Ruderal Weed		Primarily Agricultural or Ruderal Weeds and Declared Noxious		Primarily Agricultural or Ruderal Weeds Available for Sale		Primarily Agricultural or Ruderal Weeds Declared Noxious and Available for Sale	
	No.	%	No.	%	No.	%	No.	%	No.	%
Australia	720	100.0	141	19.6	37	26.2	62	44.0	13	9.2
NSW	205	28.5	51	24.9	22	43.1	45	31.9	7	31.8
QLD	158	22.0	42	26.6	8	19.0	27	19.1	4	50.0
SA	161	22.5	35	21.7	16	45.7	6	4.3	4	25.0
TAS	152	21.0	22	14.5	16	72.7	19	13.5	4	25.0
VIC	409	57.0	73	17.9	19	26.0	24	17.0	5	26.3
WA	314	43.5	68	21.7	33	48.5	9	6.4	11	33.3
ACT	104	14.5	19	18.3	1	5.2	1	0.7	0	0.0
NT	63	9.0	14	22.2	6	42.9	5	3.5	1	16.7

Notes

1 Number naturalised includes all listed taxa (genera, species, sub-species) that are recorded as naturalised in jurisdiction. Percentage is portion of Australian total, and is rounded to nearest 0.5% (Randall & Kessal 2004)

2 Declared noxious refers to taxa that are declared noxious under relevant state/territory government legislation in respective jurisdiction. The Australian total refers to the number of taxa that are declared noxious in at least one State

or Territory jurisdiction. Percentage is portion of those invasive plants naturalised in jurisdiction that are declared noxious, except for WA which also includes 'unassigned' species that may not yet be in WA and would be subject to a weed risk assessment if importation is sought (AWC January, 2004). The NSW figure include regional declarations, and these listed species may be available for sale in non-control areas.

3 Available for Sale refers to the number of plant species and taxa that are recorded for sale in Hibbert (2002). It includes number of species recorded as available for sale in the respective jurisdiction plus the 1 species and taxa recorded as 'widely available' (it is assumed that 'widely available' plants are available in all States and Territories). Percentage is portion of total naturalised invasive plants that are primarily agricultural or ruderal weeds in Australia that are recorded as available for sale in respective jurisdiction.

4 Declared noxious and available for sale refers to species and taxa that are declared noxious in one jurisdiction while being available for sale in another jurisdiction. Percentage is portion of controlled agricultural or ruderal weeds in the respective jurisdiction that are also recorded as available for sale in at least one Australian state or territory.

5 Naturalised and Prohibited for Sale in Jurisdiction refers to species and taxa that are both naturalised and prohibited in the respective jurisdiction.

Sources: Hibbert 2002); Randall and Kessal (2004); Australian Weeds Committee (2004)

Impacts on cropping systems

Table 24 lists a number of significant cropping weeds that are escaped invasive garden plants.

Table 24: Selected invasive garden plants that are cropping weeds

Scientific name	Common name	Agricultural industry impacted
Allium vineale	crow garlic, wild garlic, field garlic, wild onion, stag's garlic, scallions	Cereals, Nursery weed, Pome Fruits
Amaranthus albus	tumble pigweed, white pigweed, prostrate pigweed, stiff tumbleweed	
Arctotheca calendula	capeweed, cape daisy, cape marigold, marigold, silverspreader	Canola, Carrots, Cereals
Capsella bursa-pastoris	shepherd's purse, lady's purse, pepperplant, St James weed, shepherd's pouch, mother's heart, case weed, pick weed	bulbs, Canola, Carrots, Cereals, Melons , Cutflowers, Lupins, Nursery weed, Pome Fruits, Potato, Stonefruit
Cardaria draba	hoary cress, white weed, pepperweed whitetop, white top, hoary pepperwort, thanet cress, lepidium, perennial peppergrass, heart podded hoary cress, cardaria, hoary cardaria, whitlow pepperwort	Canola, Cereals, Pome Fruits
Carduus nutans	nodding thistle, musk thistle, nodding plumeless thistle, chardon penche, musk thistle, plumeless thistle	Grapevines, Nursery weed
Carthamus lanatus	saffron thistle, distaff thistle, false star thistle, woolly safflower, woolly star thistle, downy safflower	Cereals
Chenopodium album	white goosefoot, common lambsquarters, fat hen, lamb's quarters, pigweed, baconweed, chou grass, fathen, forst bite, mealweed, pitseed goosefoot, white goosefoot, white pigweed, wild spinach, netseed lambsquarters, farinello comune	bulbs, Canola, Carrots, Cereals , Melons, Cutflowers, Lupins, Pome Fruits, Potato, Stonefruit
Convolvulus arvensis	field bindweed, bindweed, creeping Jenny, morning glory, perennial morningglory, small bindweed, cornbine, wild morning glory, small flowered morning glory, European bindweed, corn bind, bear bind, green vine, akkerwinde, klimop	Bananas, Canola, Carrots, Cereals, Melons, Cutflowers, Pome Fruits, Potato, Stonefruit
Cucumis myriocarpus	paddy melon, prickly paddy melon, bitter apple, gooseberry cucumber, small thorny cucumber, small wild cucumber, small wild melon, striped wild cucumber, wild cucumber, gooseberry gourd, bitterappel, gifappel, isendelenja, mokapana, monyaku, thlare sa mpja, wilde komkommer	Pome Fruits
Cyperus rotundus	purple nutsedge, nutgrass, nutsedge, cocograss, red nutsedge, water grass, red grass, Yaa haeo muu	Bananas, Cereals, Melons, Nursery weed, Pome Fruits, Potato, Stonefruit
Datura stramonium	jimsonweed, Jamestown weed, thornapple, common thorn apple, thornapple, mad apple, stinkwort, colenso weed, common stinkapple, devil's apple, jimson weed	Bananas, Carrots, Cereals , Nursery weed, Pome Fruits, Potato
Echium plantagineum	Paterson's curse, salvation Jane, blue weed, Lady Campbell weed, purple bugloss, purple echium, purple viper's bugloss, Riverina bluebell	Pome Fruits, Stonefruit

Equisetum arvense	field horsetail, scouring rush, western horsetail, horsetail, foxtail, rush, horsetail fern, meadow pine, pine grass, foxtailrush, bottle brush, horsepipes, snake grass, mare's tail, shave grass, coda cavallina	Canola, Cereals, Lupins, Nursery weed, Pome Fruits, Potato
Eragrostis cilianensis	stinking eragrostis, stink love grass, stink eragrostis, stinkgrass, candy grass, lovegrass, spreading love grass	Cereals, Pome Fruits
Galinsoga parviflora	galinsoga, smallflower galinsoga, potato weed, gallant soldier, yellow weed, joey hooker, small flowered quickweed, galinsoga weed, chick weed, potato weed, kew weed	Carrots, Cereals, Melons, Cutflowers, Potato
Galium aparine	cleavers, goosegrass, scratch grass, grip grass, catchweed bedstraw, white hedge, bedstraw, stickywilly, velcro plant, robin run over the hedge, attaccamano, gallio, pega pega	Canola, Carrots, Cereals, Cutflowers, Grapevines, Lupins, Nursery weed, Pome Fruits, Potato
Heliotropium amplexicaule	blue heliotrope, wild verbena, clasping heliotrope, purpletop, turnsole, wild heliotrope, verveine sauvage	
Lactuca serriola	prickly lettuce, wild lettuce, China lettuce, compass plant, milk thistle, horse thistle, wild opium	Canola, Cereals, Melons, Pome Fruits, Stonefruit
Onopordum acanthium	Scotch thistle, cotton thistle, heraldic thistle, silver thistle, woolly thistle, Scotch cotton thistle	
Senecio vulgaris	ragwort, groundsel, sticky groundsel, stinking groundsel, wood groundsel, senecione, old man in the spring, grimsel, simson, bird seed, common fireweed	bulbs, Canola, Carrots, Cereals, Melons, Cutflowers,Cutflowers, Lupins, Nursery weed, Pome Fruits, Stonefruit
Sisymbrium officinale	hedge mustard, hedge wild mustard, hedge weed, rohtopernaruoho, Erísimo, common hedge mustard	Nursery weed
Solanum nigrum	black fruited nightshade, black nightshade, blackberry, common nightshade, deadly nightshade	Canola, Carrots, Cereals, Melons, Cutflowers, Lupins, Pome Fruits, Potato
Taraxacum officinale	common dandelion, English dandelion, dandelion, little marsh dandelion, bog dandelion, lesser dandelion	Cereals, Cutflowers, Nursery weed, Pome Fruits, Potato, Stonefruit

Impacts on grazing industries

Invasive garden plants also have a significant impact to Australia's grazing industries. The report, *Weeds of Significance to the Grazing Industries of Australia*, published by the CRC for Australian Weed Management and Meat and Livestock Australia Ltd identified those weeds of most significance to the grazing industry (Grice 2003), of which a large proportion are escaped garden plants.

Of the 48 weeds identified as of greatest significance to Australian grazing industries, 20 (42 %) are invasive garden plants of which 4 are still available for sale (refer Table 25).

Of the 24 emerging weeds identified as having the potential to become highly significant for grazing industries, 13 or 54% are invasive garden plants, of which a third (8 or 33%) remain available for sale (refer Table 26).

Other invasive garden plants that are identified in the report as grazing weeds that are recorded for sale includes Artichoke Thistle (*Cynara cardunculus*) (Vic), Arum Lily *(Zantedeschia aethiopica)* (Sth WA), Athel Pine (*Tamarix aphylla*) (NT), Broad leaved Pepper Tree (*Schinus terebinthifolius)* (NSW), Camphor Laurel *(Cinnamomum camphora)* (NSW, Sth Qld), Cat's Claw Creeper (*Macfadyena unguis-cati)* (Sth Qld), Groundsel Bush *(Baccharis halimifolia)* (Sth Qld), Horehound *(Marrubium vulgare)* (Vic), Onion Grass *(Romulea rosea)* (Inland NSW), *(*Scotch Broom *(Cytisus scoparius)* (NSW), Sweet Briar *(Rosa rubiginosa)* (Vic) (Hibbert 2002; Grice 2003)

Other invasive garden plants that are identified in the report as grazing weeds that are not recorded for sale includes Chinee Apple (*Ziziphus mauritiana*) (Nth Qld, NT), Dock *(Rumex spp.)* (Vic), Mouse-eared Chickweed (*Cerastium glomeratum)* (Sth WA), Privet *(Ligustrum lucidum, L. sinense)* (NSW), Salvinia *(Salvinia molesta)* (Nth Qld), Saffron Thistle *(Carthamus lanatus)* (Nth WA, Vic, Sth Qld), Water Hyacinth (*Eichornia csassipes)* (Nth Qld, NSW) (Hibbert 2002; Grice 2003).

Table 25: Weeds of greatest significance to Australian grazing industries that are Invasive garden plants

Weed Species Common Name	Weed Species Scientific Name	Region Impacted	Available for Sale
African Boxthorn	*Lycium ferocissimum*	Inland NSW	No
African Lovegrass	*Eragrostis curvula*	Sth WA, Vic, Inland NSW, Sth Qld	No
Blackberry	*Rubus fruticosus*	Sth WA, Vic, Inland NSW	No
Cape Tulip	*Homeria miniata*	Sth WA, Vic	No
Cape Weed	*Arctotheca calendula*	Sth WA, Vic, Inland NSW	No
Creeping Lantana	*Lantana montevidensis*	Sth Qld	Yes
Giant Sensitive Plant	*Mimosa pigra*	NT	No
Gorse	*Ulex europaeus*	Vic, Inland NSW	No
Lippia	*Phyla canescens*	Inland NSW, Sth Qld	No
Lantana	*Lantana camara*	Nth Qld, Sth Qld, Coastal NSW	Yes
Mesquite	*Prosopis spp.*	Nth Qld, NT, Nth WA, Inland NSW, Sth Qld	No
Mother of Millions	*Bryophyllum delagoense*	Inland NSW, Nth Qld, Sth Qld	Yes
Parkinsonia	*Parkinsonia aculeata*	Nth Qld, NT, Nth WA	No
Paterson's Curse	*Echium plantagineum*	Sth WA, Inland NSW	No
Rubber bush	*Calotropis procera*	NT, Nth Qld	No
Rubber Vine	*Cryptostegia grandiflora*	Nth Qld	No
Scotch Thistle	*Onopordum acanthium*	NSW	No
Serrated Tussock	*Nassella trichotoma*	Inland NSW, Vic, Sth Qld	No
St Johns wort	*Hypericum perforatum*	Inland NSW	Yes
Wild radish	*Raphanus raphanistrum*	Sth WA	No

Sources: Hibbert (2002); Grice (2003:105)

Table 26: Emerging weeds that are potentially significant problems for Australian grazing industries that are also invasive garden plants

Weed Species Common Name	Weed Species Scientific Name	Region Impacted	Available for Sale
Cape Tulip	*Homeria miniata*	Sth WA, Vic	No
Chincherinchee	*Ornithogalam thyrsoides*	Naturalised in NSW, SA, WA	Yes
Chinese Elm	*Celtis sinensis*	NSW, Sth Qld	No
Fountain Grass	*Pennisetum setaceum*	Sth Qld	Yes
Green Cestrum	*Cestrum parquii*	NSW	No
Hawkweeds	*Hieracium spp.* *H. aurantiacum* *H. pilosella*		 Yes Yes
Lippia	*Phyla canescens*	NSW, Sth Qld	No
Lincoln Weed	*Diplotaxis tenuifolia*	Naturalised in SA and Vic	Yes
Mother of Millions	*Bryophyllum delagoense*	NSW, Sth Qld	Yes
Neem	*Azadirachta indica*	NT	Yes
Sisal hemp	*Agave sisalana*	WA	Yes
Spotted knapweed	*Centaurea maculosa*	Currently expanding its range	No
Yellow Oleander	*Cascabela thevetia*	Still restricted as naturalised plant	Yes

Sources: Hibbert (2002); Grice (2003:111); Randall & Kessal (2004)

National Eradication Target Weeds

Twenty seven naturalised non-native species which impacted on agricultural ecosystems were identified by Groves *et al.* (2003) for which a national containment or eradication program was recommended. Three of these species are included in the list of Randall & Kessal (2004), of which one – *Hieracium aurantiacum* – is listed for sale in Queensland but is declared noxious in Victoria, NSW, Tasmania and Western Australia and prohibited from sale in Victoria, NSW and Tasmania. This species is known to be naturalised in Tasmania and, more recently, in Victoria.

Discussion

It is of concern that some species that are declared noxious (mainly for their impact on agriculture) or known to be impacting agricultural ecosystems in some way are still available for sale from Australian nurseries. In some cases weeds declared noxious and prohibited from sale in one state may not have the same status in another state.

But while plants can be freely moved interstate, such a situation becomes untenable nationally. For instance, *Lantana camara* is both declared noxious and prohibited from sale in Queensland but in neighbouring northern NSW it is still for sale by some nurseries.

Further, the interstate movement of people facilitates the demand for sale of agriculturally-significant weeds by unwitting new arrivals from a different climatic region.

Chapter 6. Recommendations for Better Management of Sale of Invasive Garden Plants

An earlier attempt by the CRC for Weed Management Systems and the Nursery Industry Association of Australia, *the Garden Plants Under the Spotlight: an Australian strategy for invasive garden plants*, (Roush *et al.* 1999) to voluntarily remove from sale 52 species of garden plant failed. A recent assessment of the extent to which this initiative achived "an expected reduction in the sale" of the 52 garden thugs showed that nationally there was no change in the number of garden thug taxa available for commercial sale from nurseries from the commencement year, 1999, to 2002. In 1999, 22 garden thugs were recorded for sale, and while there was some turn-over of species, 22 garden thug taxa were also recorded for sale in 2002 (Glanznig *et al* 2004b). A major reason for this failure was the nursery associations in some individual states not embracing the initiative, although it was supported by the national body who participated actively in its formulation. However, there is at least one successful local voluntary system of removal from sale of known invasive species in the ACT, but only over a period of 10 years and after an impressive degree of persistence (Butler 2004).

This report, with the help of one expert weed scientist per region, has identified the ten most important garden plants that are still available for sale nationally, which are all drawn from nine lists of the ten most invasive garden plants in each State or Territory, with two lists from the Northern Territory. Accordingly, our first two recommendations concern these species and their removal from sale nationally.

Recommendation 1. At least 80 species that are currently available for sale should be prohibited as an urgent priority. These include the species that are Weeds of National Significance, the species on the Alert List, the species that are declared or noxious, and the 10 species that have been shown to impact on ROTAP species.

Recommendation 2. The ten most important species of invasive garden plants available for sale currently in Australia be removed from sale nationally from July 1, 2005. These ten species are Asparagus fern (*Asparagus scandens*), Hybrid mother-of-millions (*Bryophyllum daigremontianum X B. delagoense*), Broom (*Cytisus* spp.), Gazania (*Gazania* spp.), Glory lily (*Gloriosa superba*), Japanese honeysuckle (*Lonicera japonica*), Fountain grass (*Pennisetum setaceum*), Sweet pittosporum (*Pittosporum undulatum*), Pepper tree (*Schinus molle,* syn. *S. areira*) and Periwinkle (*Vinca major*).

Recommendation 3. Many other invasive garden plants nominated for individual states, territories or regions should be added progressively to the list of weeds prohibited from sale nationally.

In view of the extensive pattern of interstate movements of people (to Queensland predominantly in the year 2001/02, the latest year for which figures are available) and the different legislation for prohibition of sale of plants that exists between state legislatures, new legislation needs to be enacted at the federal level and be incorporated as amendments or new regulations to the EPBC Act. Table 17 shows that the highest number of nurseries is in Queensland. Presumably, a lot of that material is transported interstate, e.g. to Victoria, on a seasonal basis. Only a national prohibition on sale will overcome such interstate movements of plant material for sale.

This report has shown that a number of weeds of major national significance (WONS, Alert List species, those identified as having an impact on ROTAP species, noxious or declared species and

those recommended for containment or eradication from both natural and agricultural ecosystems) are still available for sale in Australia.

Recommendation 4. Amendments or new regulations to the current *Environment Protection and Biodiversity Conservation Act* (Federal) should be considered, to allow national prohibition of the sale of specific nursery plants known to be major weeds and to ensure uniformity between all states and territories.

The above four recommendations are largely re-active to the current situation as we have analysed it. They concern horticultural species that have entered Australia some years ago and are already invasive. To reduce the chances for other deliberately introduced plant species to become weedy by 'jumping the garden fence', we have also formulated the three following pro-active recommendations.

There already exist a few voluntary associations between nursery groups and weed scientists, as highlighted earlier in this report. These associations are successful, in our opinion, and do much to educate the wider community about the impacts of weeds on natural ecosystems and increase the community's awareness of specific weed species.

Recommendation 5. Voluntary associations between nursery groups and weed scientists at the local and regional levels should be fostered to increase the number and effectiveness of future associations.

To further limit the number of new and emerging species that are presently becoming naturalised around Australia's cities, especially those settlements abutting national parks and nature reserves, the CRC for Australian Weed Management has commenced monitoring the edges of the Blue Mountains National Park where those edges adjoin houses and gardens. Already a number of newly naturalised species have been detected and plans for their containment or eradication proposed.

Recommendation 6. Bushland areas adjoining peri-urban settlements around Australian cities should be actively and regularly searched by experienced botanists and trained community volunteers to detect and eradicate newly naturalised species that have already 'jumped the garden fence'.

Finally, at each stage of the invasion pathway and applying equally to each of the above six recommendations, but especially to the above two pro-active recommendations, there is an urgent need for education programs to raise the awareness of Australia's communities and media to the on-going problem of weeds and of means to reduce the impact of such species on the nation's economy and the population's quality of life.

Recommendation 7. Increased resources should be provided to advance the awareness of the Australian community to the negative impacts that many established and emerging weeds are having on natural and agricultural ecosystems and will have in the future, focusing especially on those already growing in Australian private and public gardens.

Chapter 7. Concluding Discussion

This report has focused on one stage – the naturalisation stage – in the overall invasion process. It has necessarily ignored the continuing introduction of new plant material to Australia regulated by quarantine (but see Spafford Jacob *et al.* (2004) and Glanznig (2005) for a discussion of the remaining problems at this stage of the invasion process). Nor has this report made any recommendations about improved management systems for the invasive plants that are already naturalised and now form about 10% of Australia's plant diversity and affect all natural and agricultural ecosystems. Rather it has concentrated on the transition from cultivation of plant species in a garden situation to the stage when it is newly naturalised in the bush.

At each stage in the invasion process there is a marked decrease (of the order of 90%) in the number of species moving from one stage to another. The majority of plants available for sale by nurseries are not likely to become invasive in Australian ecosystems. We have concentrated on the relatively small proportion that have become invasive or will most probably do so in the near future, in the hope of minimizing that number still further. The most cost-effective way to do so is to limit their availability at the point of sale. For its own professional status, the nursery and gardening industry can no longer afford to be seen to be selling invasive plants, as it has in the past. We urge it to form effective partnerships with weed scientists and invasion biologists to further study the transition from garden to bush, pasture or cropland and thereby be seen by the Australian community as an industry both more responsible and more responsive to the present and future problems facing the biological diversity or economic sustainability of Australian ecosystems. This report has discussed the past and present relationships existing between weeds and the nursery industry as quantitatively as possible. We have made some recommendations to address the present situation as we see it, as well as formulating three pro-active recommendations in the hope that the future rate of naturalisation will decrease. To be seen as responsible for introducing two thirds of Australia's present weeds may be less damning for the nursery industry than for the latter to be seen in the eyes of our grandchildren to have done nothing about the present and predictable future situations, despite several warnings. A start in forging closer links between invasion biologists and nursery sales people has begun at the local and regional levels but such co-operation must also be at the national level.

Removal of plant species from sale because of their known invasive properties will help overcome the past and present situations. But the nursery industry is prone to promoting novelty and creating fashions in landscaping. We were unable to identify likely emerging weeds of cropping areas or in salinity amelioration having their origin in horticulture. The promotion of drought-hardy species, and especially of 'xerophytic' perennial grasses, to meet current demands in southern Australia to reduce water usage by home gardeners is predictable and has already begun. Many such grasses are already invasive in natural grasslands and pasture, e.g. *Nassella* spp. The attempt by the CRC for Weed Management Systems to remove *Nassella tenuissima* from sale in Victoria has been both economically beneficial (see earlier) and an indication of the sort of problems to come. The discovery of 21 plants of the same species still available for sale in another Victorian nursery in February 2004 highlights the seriousness of the situation. And yet such species are still being promoted by irresponsible and uninformed journalists in Australian (and British) horticultural journals. As such, there remains much to be done to encourage the media to select and promote garden plants that are non-invasive.

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Appendix 1. National list of naturalised invasive and potentially invasive garden plants (based on Randall & Kessal (2004) but without their 'sleeper' category).

No	Species	Common name	Naturalised Where?	Enviro Score [5]	Australian Rating	National importance	Declared Noxious Where? (Jan.2004)	Prohibited from sale/ Where	Available for sale (Aussie Plant Finder)	Available for sale (All references)[1]
1.	*Acacia baileyana*	Cootamundra wattle, Bailey's wattle	Vic, SA, NSW, Qld, WA, ACT	HXXXXH					Widely available	Y
2.	*Acacia cyclops*	red eye, rooikrans acacia, western coastal wattle, redwreath acacia, cyclops acacia	SA	X					NSW, WA[4], SA	Y
3.	*Acacia dealbata*	silver wattle, black wattle, Tasmania mimosa, blue wattle	WA	X					Widely available	Y
4.	*Acacia decurrens*	green wattle, early black wattle, black wattle	Vic, SA, Qld, WA, ACT	HXXXX					NSW, Vic, WA[4]	Y
5.	*Acacia elata*	cedar wattle, mountain cedar wattle, peppertree wattle	Vic, NSW, WA	HXX					NSW, Vic, WA[4]	Y
6.	*Acacia farnesiana*	huisache, mimosa bush, Ellington curse, perfumed wattle, cassie flower, sponge flower, sweet acacia, arapiraca, corona christi	Qld, WA	XH	5				Qld, NSW	Y
7.	*Acacia floribunda*	catkin wattle, white sallow wattle, sally wattle	Vic	X					Widely available	Y
8.	*Acacia iteaphylla*	Flinders Range wattle	Vic, SA	XX					Widely available	Y
9.	*Acacia longifolia var. longifolia*	Sydney golden wattle	Vic, SA, WA	HXX						Y
10.	*Acacia longifolia var. sophorae*	sallow wattle	Vic	X					NSW, Vic, Tas, SA	Y
11.	*Acacia longifolia*	Sydney golden wattle, long leaved wattle, langblaarwattel, sallow wattle, Port Jackson acacia	Vic, SA, WA	HXX					Widely available	Y
12.	*Acacia melanoxylon*	Australian blackwood, blackwood, blackwood acacia, Australiese swarthout, Australian ysterhout, Tasmanian blackwood	WA	X					Widely available	Y
13.	*Acacia paradoxa*	prickly acacia, acacia hedge, hedge acacia, hedge wattle, kangaroo acacia, kangaroo thorn, paradox acacia	ACT, Sleeper	SX					NSW, Vic, SA	Y
14.	*Acacia podalyriifolia*	Queensland silver wattle, pearl acacia, Mount Morgan wattle, vaalmimosa	Vic, SA, NSW	XXX					Widely available	Y
15.	*Acacia pravissima*	ovens wattle, alpine wattle	Vic	X					Widely available	Y
16.	*Acacia prominens*	Gosford wattle, golden rain wattle	Vic	H					Vic, NSW	Y
17.	*Acacia pycnantha*	golden wattle, Australian golden wattle, blackwood, gouewattel, broad leaved wattle	SA, Tas[3], WA	XXX					Widely available	Y
18.	*Acacia retinodes*	everblooming acacia, water wattle, wirilda, wirilda wattle	Vic	H					Vic,Tas, NSW	Y
19.	*Acacia saligna*	Port Jackson willow, golden wreath wattle, blue leaved wattle, orange wattle	Vic, SA, NSW	HXH					NSW, Tas, WA[4], Vic, SA	Y
20.	*Acacia sophorae*	coast wattle, coastal wattle	Vic	X					NSW, Vic, Tas, SA	Y
21.	*Acaena agnipila*	Australian sheep's burr, sheep's burr	WA	X					Vic	Y
22.	*Acanthus mollis*	bears breeches, artists acanthus	Vic	X	2				Widely available	Y
23.	*Acer negundo*	boxelder, ashleaf maple, box elder maple, Manitoba maple	Vic, NSW, ACT[3]	XXX	4				Widely available	Y
24.	*Acer pseudoplatanus*	sycamore, great maple, planetree maple	Vic, Tas, Sleeper	HXS	4				WA	Y
25.	*Acetosa sagittata*	rambling dock, climbing sorrel, turkey rhubarb	NSW, Qld, WA	HXX	3		NSW, WA	NSW		
26.	*Acetosa vesicaria*	bladder dock, wild hops, rosy dock, ruby dock	NT	H	5					
27.	*Achillea millefolium*	common yarrow, yarrow, milfoil, thousand leaf, bloodwort, sanguinary	Vic, ACT	XX	5				Qld, NSW, Tas, Vic	Y
28.	*Achyranthes aspera*	chafflower, dombo, tamatama, aerofai, lautafifi, talamoa fisi, Devil's horsewhip, piripiri, sono ivi, rough chaff flower, lau tamatama	WA	X					NSW	Y
29.	*Actinotus helianthi*	flannel flower	Vic	X					NSW, Vic, WA	Y
30.	*Adonis microcarpa*	small fruited pheasant's eye, pheasant's eye, red chamomile, yelllow pheasant's eye	SA	X	3		SA, WA	SA		
31.	*Aeonium arboreum*	golden aeonium, tree aenium	WA	X	3				NSW	Y
32.	*Agapanthus spp.*	agapanthus, ladybells	Vic	H	?					Y
33.	*Agave americana*	American agave, century plant, maguey, American aloe	Vic	X	?				Qld	Y

No	Species	Common name	Naturalised Where?	Enviro Score [5]	Australian Rating	National importance	Declared Noxious Where? (Jan.2004)	Prohibited from sale/ Where	Available for sale (Aussie Plant Finder)	Available for sale (All references)[1]
34.	*Agave sisalana*	sisal hemp, sisal, garingboom, hemp plant	WA	X	4				NSW	Y
35.	*Agave spp.*	agave	NSW	X						
36.	*Ageratina adenophora*	crofton weed, catweed, hemp agrimony, Mexican devil, sticky agrimony, sticky eupatorium, sticky snakeroot, maui pamakani	NSW, Qld	HX	5		NSW, WA			
37.	*Ageratina riparia*	mistflower, catspaw, creeping crofton weed, river eupatorium, small crofton weed, white weed	NSW, Qld	HX	5		NSW, NT, WA	NT	Tas	Y
38.	*Agonis flexuosa*	WA willow myrtle, willow myrtle, peppermint Willow myrtle	Vic, WA	XX					Widely available	Y
39.	*Agrostis capillaris*	colonial bentgrass, common bent, brown top bent	Vic, Tas,	HX	?					
40.	*Agrostis stolonifera*	creeping bent, redtop, creeping bentgrass, seaside bentgrass	Vic, Tas	HX	4					
41.	*Ailanthus altissima*	tree of heaven, copal tree, varnish tree, hemelboom, Chinese sumac, stinking cedar	Vic, SA, NSW, Qld, WA, ACT	XHXXXH	5		NSW, Vic, WA	Vic		Y
42.	*Ajuga reptans*	bugle, bugleweed, common bugle, creeping bugleweed, carpet bugle, rönsyakankaali, blue bugle	Tas	H	4				NSW, Vic, Tas, Qld	Y
43.	*Albizia lebbeck*	lebbeck tree, Indian siris, siris tree, Indian albizia, East Indian walnut, bois noir, kokko, trongkon mames, woman's tongue tree	SA, Qld	XX	3				NT	Y
44.	*Alectryon tomentosus*	woolly rambutan	NSW	X					NSW	Y
45.	*Allamanda cathartica*	yellow trumpet vine, allamanda, golden allamanda, golden cup, lani ali'I, pua tanofo	Qld[3]	X	3				NT, WA	Y
46.	*Allium ampeloprasum*	wild leek, broadleaf wild leek, elephant garlic	WA	X	1				Qld, NSW, Tas, Vic	Y
47.	*Allium neapolitanum*	white garlic, flowering onion, false garlic, Naples onion, daffodil garlic	Vic	X	1				Qld, NSW, Tas, Vic	Y
48.	*Allium triquetrum*	three cornered leek, angled onion, flowering onion, three corner garlic, triangular stalked garlic	Vic, SA, WA	HHH	5		Vic, SA, WA	Vic	NSW	Y
49.	*Allium vineale*	crow garlic, wild garlic, field garlic, wild onion, stag's garlic, scallions	SA, NSW	HX	3		Vic, SA, Tas, WA	Vic, Tas, SA		
50.	*Alnus glutinosa*	black alder, European alder, alder, common alder, sticky alder	ACT Sleeper	SH					NSW, Vic	Y
51.	*Alstroemeria aurea*	alstroemeria, yellow alstroemeria	Vic	H	4				NSW	Y
52.	*Alstroemeria pulchella*	parrot alstroemeria	Vic, WA	XXX	4				NSW, Vic, Qld	Y
53.	*Alternanthera philoxeroides*	alligator weed, pig weed, alligator grass, Phak pet nam	NSW, Qld, ACT, Sleeper	XXSH	5	W	NSW, Vic, Qld, SA, NT, WA, Tas, ACT	Vic, NSW, Qld, Tas, NT, WA, SA		
54.	*Amaranthus albus*	tumble pigweed, white pigweed, prostrate pigweed, stiff tumbleweed	Tas, WA	HX	3					
55.	*Amaranthus spinosus*	spiny amaranth, spiny pigweed, bledo macho, spring pigweed, Phak khom nam	Tas	X	5					
56.	*Amaranthus viridis*	slender amaranth, green amaranth, Prince of Wales feather, green pigweed, pigweed, Pak khom	NSW	X	5					
57.	*Amaryllis belladonna*	belladonna lily, kapamaryllis amaryllis	SA, WA	XX	2				NSW, Vic, SA	Y
58.	*Ambrosia psilostachya*	western ragweed, perennial ragweed, cuman ragweed	SA, NSW	XX	5		NSW, Vic, SA, NT, WA	Vic, NT, SA		
59.	*Ammophila arenaria*	European beachgrass, marram grass, rantakaura	Vic, SA, Tas, WA	HXXX	5					
60.	*Anagallis arvensis*	scarlet pimpernel, blue pimpernel, pimpernel	Vic, NSW,WA	HXH	4					
61.	*Andropogon virginicus*	broomsedge, whisky grass, yellow bluestem, broomsedge bluestem, sedge grass, beard grass	NSW, Qld	XX	5					
62.	*Angophora costata*	apple jack, smooth angophora, red gum	Vic	X					Widely available	Y
63.	*Annona glabra*	pond apple, alligator apple, bullock's heart, cherimoyer, uto ni mbulumakau, kaitambo, custard apple	Qld[3]	X	4	W	SA, WA, Qld	SA, Qld	NSW	Y
64.	*Anredera cordifolia*	Madeira vine, heartleaf madeiravine, mignonette vine, lamb's tail, madeiraranka	Vic, SA, NSW, Qld, WA, Sleeper	HXHXXS	5		NSW, WA, Qld	Qld, NSW		
65.	*Anthemis cotula*	stinking mayweed, dillweed, dog's camomile, dog daisy, dog fennel, mather, mayweed, stinking chamomile	WA	X	4		Tas, WA	Tas		
66.	*Anthoxanthum odoratum*	sweet vernalgrass, scented vernal grass, flouve odorante, tuoksusimake	Vic,Tas, WA, Sleeper	HXHS	4				Qld, NSW	Y

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67.	*Apium graveolens*	celery, garden celery, wild celery, selleri, zeler voÀavˇ	Vic, WA	XX	2				NSW, Tas, Vic	Y
68.	*Aponogeton distachyos*	cape water hawthorn, cape pondweed, cape pond lily, dog with two tails	Vic, Tas	HX	4				NSW, Vic, SA	Y
69.	*Aptenia cordifolia*	heartleaf iceplant, red apple, baby sun rose	Vic, Tas, WA	XXX	3				NSW, WA, Qld	Y
70.	*Aquilegia vulgaris*	columbine, European columbine, lehtoakileija	Vic	X	2				Vic, Tas	Y
71.	*Araujia sericifera*	moth catcher, white bladder flower, moth plant, moth vine, motvanger, bladder flower, cruel plant, glehold plant, milkwee, stranglehold plant	Vic, SA, NSW, Qld, Sleeper	XXHXS	5		NSW, WA	NSW		
72.	*Arbutus unedo*	strawberry tree	Vic, SA, Sleeper	XXS	2				NSW, Vic, WA, Tas	Y
73.	*Arctotheca calendula*	capeweed, cape daisy, cape marigold, marigold, silverspreader	Vic, NSW, NT, WA, ACT	HXXXX	5					
74.	*Arctotis venusta*	free state daisy, white arctotis, blue eyed African daisy, silverga hopeasilm	Vic	X						
75.	*Ardisia crenata*	coral berry, coral ardisia, hen's eyes, hilo holly	NSW, Sleeper	XS	1				Qld	Y
76.	*Ardisia humilis*	shoebutton ardisia	NT[3]	X	3					Y
77.	*Arenaria serpyllifolia*		WA	X	2					
78.	*Argemone ochroleuca*	Mexican poppy, devil's fig, golden thistle of Peru, Mexican pricklepoppy, Mexican thistle, prickly poppy, white thistle, yellow poppy	NT, WA	HX	5		NT, WA	NT, WA		
79.	*Argemone subfusiformis*	Mexican poppy, devil's fig, golden thistle of Peru, Mexican pricklepoppy, Mexican thistle, prickly poppy, white thistle, yellow poppy	Qld, NT, WA	XXX	5		WA	WA		
80.	*Aristea ecklonii*	blue stars, blue corn lily, aristea	Vic, Sleeper	XS	2				NSW, Qld, SA, Vic, WA	Y
81.	*Aristolochia elegans*	Dutchman's pipe, calico flower	NSW, Qld, Sleeper	XXS	5		WA, Qld	Qld	WA	Y
82.	*Arrhenatherum elatius*	tall oatgrass, false oatgrass, French oatgrass	Vic	X	?					
83.	*Artemisia absinthium*	wormwood, absinth sagewort, absinth wormwood, assenzio romano, palina pravá	Tas, WA	XX	1				NSW, Tas, Vic, Qld	Y
84.	*Arum italicum*	Italian cuckoo pint, Italian arum, Italian lords and ladies, Italian lily	Vic, WA	XX	2				Tas, Vic, SA	Y
85.	*Arundo donax*	giant reed, arundo, giant reed, gasau ni vavalagi, bamboo reed, Spanish reed, grand roseau, canne de Provence, Spaanse riet, giant Danube reed, bamboo reed, false bamboo, elephant grass, wild cane, fiso papâlagi, Canna	Vic, NSW, WA	XXX	?		NSW, WA	NSW	NSW, Vic	Y
86.	*Asclepias curassavica*	red head cottonbush, blood flower, redhead, butterfly weed, bloodflower milkweed, scarlet milkweed	WA	X	4				Qld, NSW	Y
87.	*Asparagus africanus*	asparagus fern, lukungwisa, climbing asparagus	NSW, Sleeper	XS	5		Qld	Qld		Y
88.	*Asparagus asparagoides*	bridal creeper, bridal veil creeper, baby smilax, African asparagus fern, smilax	Vic, SA, NSW, Tas, WA	HHXHH	5	W	SA, Tas, NSW, WA, Qld	SA, Qld, Tas	NSW	Y
89.	*Asparagus declinatus*	pale berry asparagus fern, asparagus fern, bridal vale	SA, WA	XX	4		SA, WA	SA		
90.	*Asparagus densiflorus*	emerald feather, asparagus fern, sprengeri fern, bushy asparagus, proTasparagus, Sprenger's asparagus fern	Vic, NSW, Qld, Sleeper	XHXS	5		NSW, WA	NSW	NSW, Vic, NT	Y
91.	*Asparagus officinalis*	asparagus, asparágus lekársky	Vic, ACT	HX	4				Qld, Tas, NSW	Y
92.	*Asparagus plumosus*	climbing asparagus fern	NSW, Qld, ACT	XXX	5		NSW, Qld, WA	Qld, NSW	NSW	Y
93.	*Asparagus scandens*	asparagus fern, climbing asparagus	Vic, NSW, Tas	XXH	5					Y
94.	*Asphodelus fistulosus*	onion weed, asphodel, hollow stemmed asphodel, wild onion	Vic, SA, NSW, WA	HXXX	5		NSW, Vic, NT, Tas, SA, WA,	Tas, NT, Vic	NSW	Y
95.	*Aster subulatus*	slender aster, aster, slim aster, aster weed, bushy starwort, wild aster	Vic, SA, Qld, WA	HXXX	4					
96.	*Atriplex prostrata*	hastate orache, orache, spear leaved orache, triangle orache, isomaltsa, loboda rozprestretá	Vic, WA	HX	5					
97.	*Avena sativa*	wild oat, common oat, oat, sativa oat, ovos siaty	Vic	X	4					
98.	*Azadirachta indica*	neem, Indian lilac, margosa tree, nim tree	NT[3]	X	2				Qld, NSW, NT	Y
99.	*Babiana angustifolia*	baboon flower, babiana	Vic, SA, WA	XXX	5				Vic, Tas, NSW	Y

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100.	*Baccharis halimifolia*	tree groundsel, groundsel bush, eastern baccharis, groundel, groundsel baccharis, groundsel tree	NSW, Qld	HX	5		NSW, Qld, NT, WA	Qld, NT	NSW	Y
101.	*Baeckea virgata*	tall baeckea	Vic	X					Widely available	Y
102.	*Barleria prionitis*	barleria, porcupine flower	Qld[3], NT[3], WA[3]	XXX	3	A	NT, WA	NT		
103.	*Bellis perennis*	English daisy, lawndaisy, European daisy	Vic, Tas	XX	4				NSW	Y
104.	*Berberis darwinii*	Darwin's barberry, berberis, barberry	Vic, Sleeper	XS	4				NSW, Vic	Y
105.	*Betula nigra*	river birch, red birch, black birch	WA	X	1				NSW, Vic, Qld	Y
106.	*Bidens pilosa*	hairy beggarticks, cobbler's pegs, beggar's tick, pitch forks, stick tights, burr, Spanish needle, fisi'uli, kofe tonga, tae puaka, matua kamate, black jack, bur marigold, cadillo de huerta, chipaca, maswquia, mozote, papunga, Puen nok sai	NSW, Qld, WA, ACT	HXXX	4					
107.	*Borago officinalis*	borage, common borage, borák lekársky	Vic	X	2				Qld, NSW, Tas	Y
108.	*Brachiaria mutica*	para grass, buffalo grass, California grass, buffalo grass, Mauritius grass, puakatau, scotch grass, panicum grass, Yaa khon	NSW, Qld, NT, WA	XXHH	5					
109.	*Brachychiton populneus*	kurrajong, bottle tree, brachychiton	WA	X					Widely available	Y
110.	*Brassica fruticulosa*	twiggy turnip, Mediterranean cabbage	Vic	X	3					
111.	*Brassica napus*	swede, kale, rape, canola, turnip	WA	X	2				Tas	Y
112.	*Brassica tournefortii*	wild turnip, Mediterranean mustard, Mediterranean turnip, Asian mustard, Moroccan mustard, African mustard, prickly turnip, sahara mustard, välimerenkaali, turnip weed	Vic, Tas, NT, WA	HHHH	5					
113.	*Briza maxima*	large quaking grass, blowfly grass, bronco grass, lady's heart grass, large fairy bells, quacking grass, shaky grass, fairy bells, quivering grass, great quaking grass, big quaking grass	Vic, NSW, Qld, Tas, WA	HXXXH	5					
114.	*Briza minor*	littlequakinggrass, pikkuräpelö, little fairy bells, quaking grass, small quaking grass, shivery grass, fairy bells, lesser quaking grass, shivery grass	Vic, SA, NSW, Qld, Tas, WA	XXXXXH	5					
115.	*Bryophyllum daigremontianum X B.delagonese*	hybrid mother-of-millions	NSW[3]	X	5		NSW, Qld, WA	Qld		
116.	*Bryophyllum delagoense*	mother of millions, chandelier plant	NSW, NT[3]	H, X	5		NSW, Qld, WA	Qld	NSW	Y
117.	*Bryophyllum pinnatum*	live plant, live leaf	NSW, Qld	XX	4		NSW, WA		NSW	Y
118.	*Buddleja davidii*	orange eye butterfly bush, summer lilac, buddleia, purple buddleia, butterfly bush	Vic, Tas, Sleeper	HXS	3				Qld, Vic, NT	Y
119.	*Buddleja madagascariensis*	butterfly bush smoke bush, buddleia, butterfly bush, buddleja bush, smokebush	SA, NSW, Qld, WA	XXXX	3				NSW, Vic	Y
120.	*Cabomba caroliniana*	fanwort, cabomba, Carolina watershield, fish grass, Washington grass, watershield, green cabomba	Vic, NSW, Qld, NT, ACT[3]	XXXXX	5	W	Qld, WA, NSW, SA, Tas, NT, ACT	SA, Qld, Tas, NT, WA, NSW	SA[4]	Y
121.	*Caesalpinia decapetala*	Mauritius thorn, mysore thorn, thorny poinciana, shoofly, wait a while, whoa back	NSW, Qld	XX	4		NSW, WA			Y
122.	*Cakile edentula*	sea rocket, American sea rocket	Vic, SA, WA	XXX	4					
123.	*Cakile maritima*	sea rocket, European searocket	Vic, SA, WA	XXH	5					
124.	*Calamagrostis epigejos*	wood smallreed, chee reedgrass, bush grass, hietakastikka	Tas	X	2					
125.	*Calicotome spinosa*	spiny broom, thorny broom	Vic, Sleeper	HS	3		Vic, WA	Vic		
126.	*Callistemon rigidus*	bottlebrush, stiff leaved bottlebrush	Vic	H					Vic, NSW, Tas, WA	Y
127.	*Callitris endlicheri*	black cypress pine, red cypress pine	Vic	H					NSW	Y
128.	*Callitris rhomboidea*	oyster bay pine	Vic	X					Vic, NSW, Tas, Qld	Y
129.	*Calotropis procera*	calotropis, rubber bush, apple of Sodom, Indian milkweed, King's crown kapok, rubber tree, roostertree, Dead Sea apple, poumpoumssé	Vic, Qld, NT, WA	XXHH	5		NT, WA	NT, WA		Y
130.	*Calystegia silvatica*	shortstalk false bindweed, greater bindweed, great bindweed, large bindweed	Vic	H	3					

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131.	*Canna indica*	Indian canna, canna, Indian shot, wild canna, canna lily, mongos halum tano, fanamanu, apeellap, oruuru	NSW, WA	HX	2				Qld, NSW	Y
132.	*Cannabis sativa*	Indian hemp, marijuana, dacha, grass, pot, redroot, Russian hemp, dagga, dagga canopy, fragrant weed, gallow grass, grass, hemp, native hemp, soft hemp, hashish, Mary Jane, bangui, canapa, konopa siata, mbanje, marryjoanna	ACT	H	2		Vic, WA	Vic		
133.	*Capsella bursa-pastoris*	shepherd's purse, lady's purse, pepperplant, St James weed, shepherd's pouch, mother's heart, case weed, pick weed	Vic, SA, NSW, Qld, Tas, WA	XXXXXX	4					
134.	*Cardamine hirsuta*	hairy bittercress, common bittercress, hoary bittercress, popping cress	Vic, NSW, WA	XXX	5					
135.	*Cardaria draba*	hoary cress, white weed, pepperweed whitetop, white top, hoary pepperwort, thanet cress, lepidium, perennial peppergrass, heart podded hoary cress, cardaria, hoary cardaria, whitlow pepperwort	Tas, Sleeper	XS	5		NSW, Vic, SA, WA, Tas	Vic, Tas, WA, SA		
136.	*Cardiospermum grandiflorum*	balloon vine, heart seed, blaasklimop, balloon vine, showy balloonvine, large balloon creeper	NSW, Qld	HX	5		NSW, Qld, WA	Qld, NSW		
137.	*Cardiospermum halicacabum*	balloonvine, heart pea, winter cherry	WA	H	?					
138.	*Carduus nutans*	nodding thistle, musk thistle, nodding plumeless thistle, chardon penche, musk thistle, plumeless thistle	ACT	H	5		NSW, Vic, Tas, WA	Vic, Tas, WA		
139.	*Carex albula*	New Zealand hair sedge	Tas	X	2		Tas, WA	Tas	NSW	Y
140.	*Carex testacea*	New Zealand sedge	Tas	X	2		Tas, WA	Tas	NSW, WA	Y
141.	*Carpobrotus chilensis*	angled pigface	Vic, Tas, WA	HXX	4					
142.	*Carpobrotus edulis*	Hottentot fig, ice plant, freeway iceplant, sour fig, common hottentot fig, sea fig	Vic, SA, WA	HXH	5					
143.	*Carrichtera annua*	Ward's weed	Vic, SA, NSW, Tas, WA	HXXXH	5					
144.	*Carthamus lanatus*	saffron thistle, distaff thistle, false star thistle, woolly safflower, woolly star thistle, downy safflower	Vic, SA, NSW, Qld, NT, WA, ACT	XXXXXXH	5		NSW, NT, WA, Tas, Vic	Tas, NT, Vic, WA		
145.	*Carthamus tinctorius*	safflower, värisaflori	Tas	X	3					
146.	*Caryota mitis*	fishtail palm, clustered fishtail palm, Burmese fishtail palm	NT[3]	X	2				Qld, NSW, NT	Y
147.	*Cassia fistula*	golden shower, golden rain tree, Indian laburnum, purging cassia	Qld, NT	XX	3				NSW, NT, WA	Y
148.	*Cassia siamea*	cassod tree, msonobali	Qld	X					Qld	Y
149.	*Casuarina glauca*	Australian pine, saltmarsh ironwood, suckering casuarina, swamp oak, Brazilian oak, gray sheoak	WA	X					Widely available	Y
150.	*Catharanthus roseus*	Madagascar periwinkle, vinca, pink periwinkle	NSW, Qld, WA, Sleeper	XXXS	4				Qld	Y
151.	*Celtis australis*	European hackberry, nettle tree	NSW, ACT	XX	3				NSW, Vic	Y
152.	*Celtis sinensis*	Chinese elm, celtis, Chinese celtis	NSW, Qld, Sleeper	HXS	5		NSW, Qld	Qld		Y
153.	*Centaurea calcitrapa*	purple starthistle, red star thistle, star thistle, caltrop, maize thorn	Vic, Qld, WA, ACT	HXXH	5		NSW, Vic, WA	Vic		
154.	*Centaurea melitensis*	Maltese star thistle, Napa star thistle, tocalote, Maltese centaury, Maltese cockspur, saucy jack, Malta thistle	Vic, SA, Qld, WA	XXXH	4					
155.	*Centaurium erythraea*	common centaury, European centaury, century, lesser centaury	Vic, WA	HH	4				Tas	Y
156.	*Centaurium spicatum*	spiked centaury, centaury	Vic, WA	XX						
157.	*Centaurium tenuiflorum*	branched centaury, centaury, slender centaury	Vic	H	4					
158.	*Centranthus ruber*	red valerian, spur valerian, Jupiter's beard	Tas, WA	XX	4				NSW, Vic, SA	Y
159.	*Cerastium glomeratum*	mouse ear chickweed, sticky chickweed, sticky mouse ear chickweed, clustered mouse ear	Vic, NSW,WA	HXX	4					
160.	*Cestrum aurantiacum*	yellow cestrum, orange cestrum, orange jessamine, orange flowering jessamine	Vic	X	3				Vic	Y
161.	*Cestrum elegans*	red cestrum, jessamine, cestrum	Vic, Sleeper	HS	2				NT, NSW	Y
162.	*Cestrum nocturnum*	lady of the night, night flowering cestrum, queen of the night, dama de noche, iki he po, kara	Vic, NSW	XX	2				Qld, NSW, Vic, WA	Y

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163.	*Cestrum parqui*	green cestrum, willow jasmine, Chilean cestrum, green poison berry, willow leaved jessamine, Chilean flowering jassamine, Chilean jessamine	NSW, Qld, Sleeper	HXS	5		NSW, Vic, WA	Vic		Y
164.	*Chasmanthe floribunda*	African cornflag, chasmanthe	Vic, SA, Tas, WA, Sleeper	HHXHS	4				Vic	Y
165.	*Chenopodium album*	white goosefoot, common lambsquarters, fat hen, lamb's quarters, pigweed, baconweed, chou grass, fathen, forst bite, mealweed, pitseed goosefoot, white goosefoot, white pigweed, wild spinach, netseed lambsquarters, farinello comune	Vic, NT, WA	XXX	5					
166.	*Chenopodium murale*	nettleleaf goosefoot, green fat hen, sowbane, nettle leaved fat hen, sowbane, swinebane, wall goosefoot, chuana soap, goosefoot, lamb's quarters, round leaved fat hen, wheat bush, green goosefoot, rauniosavikka	Vic, WA	XX	4					
167.	*Chlorophytum comosum*	bracket plant, hen and chicks, ribbon plant, spider ivy, spider plant, walking anthericum, spider plant, ribbon plant, airplane plant	NSW, Qld	XX	3				Qld, NSW	Y
168.	*Chrysanthemoides monilifera ssp. monilifera*	bone seed	Vic, SA, NSW, Qld, Tas, WA, Sleeper	HHHXXHS	5	W	Vic, Qld, SA, WA, NSW, Tas	Vic, NSW, Tas, SA, Qld		Y
169.	*Chrysanthemoides monilifera ssp. rotundata*	bitou bush	Vic, SA, NSW, Qld, Tas, Sleeper	HXHXXS	5	W	Vic, Qld, SA, WA, NSW, Tas	Vic, NSW, Tas, SA, Qld		Y
170.	*Cicendia filiformis*	slender cicendia, yellow gentianella, yellow centaury	Vic, WA	XX	4					
171.	*Cichorium intybus*	chickory, coffee weed, bachelors buttons, blue daisy, blue dandelion, blue sailors, succory, bunk, witchgrass	Vic, SA, NSW, Tas, WA	XXXXX	3				Qld, NSW, Tas	Y
172.	*Cinnamomum camphora*	camphor tree, camphor laurel	NSW, Qld, WA, Sleeper	HXXS	5		NSW, WA, Qld	Qld, NSW	WA	Y
173.	*Citrullus colocynthis*	bitter paddy melon, colocynth, bitter apple, wild watermelon, Indian colocynth, bitter melon, cara, ekir, gare damer, gartoomba, ground gourd, handal, indravarooni, tagalate, tumba, turo, unun, wild water melon	Vic, NT, WA	XHX	3					
174.	*Citrus limon*	lemon, bush lemon	NSW	XX	2				NSW	Y
175.	*Clematis vitalba*	traveller's joy, old man's beard, evergreen clematis	Vic, Tas, Sleeper	XXS	4				Tas, NSW	Y
176.	*Cleome aculeata*	prickly spiderflower	Qld[3], NT[3]	XX	3					
177.	*Clitoria ternatea*	butterfly pea, blue pea, Asian pigeonwings, buikike, paokeke, capa de la reina, putitainubia, pepe, nawa	WA	H	4				Qld	Y
178.	*Coccinia grandis*	ivy gourd, scarlet fruited gourd, arakis, ekadala, mughad, roh, scarlet gourd, tindola, kundree, pepasan, pepino cimarrón, little gourd	NT	X			WA	WA		
179.	*Coffea arabica*	coffee, dwarf coffee, Arabian coffee, kove, kofe, koahpi	NSW, Qld Sleeper	XXS	4				NSW, Qld, NT,	Y
180.	*Coffea spp.*	coffee	NSW, Qld, Sleeper	XXS						
181.	*Colocasia esculenta*	Wild taro	Qld	X	4				Qld, NSW, Vic, SA,	Y
182.	*Conium maculatum*	poison hemlock, wild carrot, wild parsnip, hemlock, bunk, California fern, poison parsley, poison root, snake weed, spotted hemlock, spotted parsley, winter fern, wode whistle.	Vic, SA, Tas, ACT	HXXH	5		Vic, NSW, WA	Vic		
183.	*Convolvulus arvensis*	field bindweed, bindweed, creeping Jenny, morning glory, perennial morningglory, small bindweed, cornbine, wild morning glory, small flowered morning glory, European bindweed, corn bind, bear bind, green vine, akkerwinde, klimop	Vic, SA, Qld, WA	XXXX	5		Vic, SA, WA	Vic, WA, SA		
184.	*Conyza canadensis*	horseweed fleabane, Canadian horseweed, Canada fleabane, butterweed, blood stanch, colt's tail, fireweed, hogweed, horseweed, mare's tail, pride weed	Vic, NSW, WA	XXX						
185.	*Coprosma repens*	mirror bush, taupata, creeping mirrorplant, looking glass bush, New Zealand mirror bush, tree bedstraw, mirror plant	Vic, NSW, Tas, Sleeper	HHXS	5				WA	Y
186.	*Coprosma robusta*	karamu	Vic, Tas	HH	4					

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187.	*Cordyline australis*	New Zealand cabbage tree, cabbage tree, dracaena palm, ti kouka	Vic	X	2				NSW, NT, Vic, WA	Y
188.	*Coreopsis lanceolata*	tickseed, garden coreopsis, lanceleaf tickseed, tickseed coreopsis	NSW, Qld, Sleeper	HXS	3				Tas	Y
189.	*Cornus capitata*	Himalayan strawberry tree, evergreen dogwood, Bentham's cornel	Vic	X	2				NSW, Vic	Y
190.	*Cortaderia jubata*	Andean pampas grass, jubatagrass, purple pampas grass, pampas grass, pink pampas grass, selloa pampas grass, Andes grass	Vic, Tas	HH	5		NSW, Tas, SA, WA	Tas, SA		
191.	*Cortaderia selloana*	pampas grass, common pampas grass, silver pampas grass, Uruguayan pampas grass, silvergrass	Vic, SA, NSW, Qld, Tas, WA, ACT, Sleeper	HXXXXHSH	5		NSW, Tas, WA	Tas		
192.	*Cortaderia spp.*	pampas grass	Vic, SA, NSW, Qld, Tas, WA, ACT, Sleeper	XXXXXXSX			NSW, Tas, WA	Tas		
193.	*Cosmos bipinnatus*	cosmos, garden cosmos, common cosmos	Vic, Qld	XX	3					
194.	*Cotoneaster divaricatus*	green cotoneaster, cotoneaster, spreading cotoneaster	Vic, ACT	HH	2					
195.	*Cotoneaster franchetii*	cotoneasters, Franchet cotoneaster, orange cotoneaster, dwergmispel, silverleaf cotoneaster, rockspray cotoneaster	Tas, ACT	HH	5		ACT, WA		Vic	Y
196.	*Cotoneaster glaucophyllus*	bright bead cotoneaster, cotoneaster	Vic, NSW, Tas, WA, ACT	HXHXH	5		NSW, ACT, WA	NSW		Y
197.	*Cotoneaster horizontalis*	fishbone cotoneaster, prostrate cotoneaster, cotoneaster, rockspray cotoneaster	Vic, Tas, ACT, Sleeper	XHSH	3				NSW, Vic, WA	Y
198.	*Cotoneaster lacteus*	milkflower cotoneaster, late cotoneaster	Tas, ACT	HH	3					Y
199.	*Cotoneaster microphyllus*	smallleaf cotoneaster	ACT	H	2					Y
200.	*Cotoneaster pannosus*	show berry bushes, cotoneaster, silwerdwergmispel, silver leaf cotoneaster	Vic, Tas, ACT	HHH	5		NSW, ACT, WA	NSW		
201.	*Cotoneaster rotundifolius*	cotoneaster	ACT	H	2					
202.	*Cotoneaster simonsii*	Himalayan Cotoneaster, Simons' cotoneaster, khasia berry	Vic, SA, ACT	XXH	2		ACT, WA			
203.	*Cotoneaster spp.*	cotoneaster, firethorn	Vic, SA, NSW, Tas, WA, ACT	XXXXXH						
204.	*Cotula coronopifolia*	water buttons, common brassbuttons, bachelor's button, brass buttons, buttonweed	Vic, WA	HX	3				NSW, Qld, Vic, SA	Y
205.	*Cotyledon orbiculata*	pig's ears, cotyledon, pyrmehilehti	Vic, WA	HX	3				NSW	Y
206.	*Crassula multicava ssp. multicava*	shade crassula, prostrate cotoneaster, crassula	Vic, Sleeper	XS	3					
207.	*Crataegus monogyna*	English hawthorn, oneseed hawthorn, single seeded hawthorn, whitethorn, may, quickthorn	Vic, SA, Tas, ACT	HHXH	5		SA, Vic, WA	SA	Vic, WA	Y
208.	*Crataegus sinaica*	hawthorn, may, azzarola, azarola thorn, Neapolitan medlar	SA	H	2		SA, WA	SA	Vic	Y
209.	*Crocosmia X crocosmiiflora*	montbretia, crocosmia, garden montbretia	Vic, NSW, Qld, Tas[3], WA, Sleeper	HHXXXS	5		NSW, WA	NSW	Vic, NSW	Y
210.	*Crotalaria agatiflora*	canary bird bush, Queensland birdflower	Qld, WA	XX	2					
211.	*Cryptostegia grandiflora*	rubbervine, Palay rubbervine, India rubber vine, liane de gatope	Qld, NT, WA	XHH	2	W	Qld, NT, WA, SA	SA, Qld, NT, WA		Y
212.	*Cryptostegia madagascariensis var. madagascariensis*	rubbervine	NT, WA	HX	1		WA, NT, Qld	Qld, NT, WA		
213.	*Cucumis melo*	smellmelon, dudaim melon, cantaloupe, rock melon, melon, uhorka ĭltá	WA	X	3					
214.	*Cucumis myriocarpus*	paddy melon, prickly paddy melon, bitter apple, gooseberry cucumber, small thorny cucumber, small wild cucumber, small wild melon, striped wild cucumber, wild cucumber, gooseberry gourd, bitterappel, gifappel, isendelenja, mokapana, monyaku, thlare sa mpja, wilde komkommer	Vic, SA, Qld, WA	XXXX	3					
215.	*Cupressus lusitanica*	Mexican cypress, Arizona cypress, cedar of Goa	Vic, Sleeper	XS					NSW	Y
216.	*Cupressus macrocarpa*	Monterey cypress	Vic, Tas, Sleeper	HXS	2				Vic	Y
217.	*Cupressus sempervirens*	Italian cypress, cipresso	Vic	X						Y

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218.	*Cymbalaria muralis*	Kenilworth ivy, coliseum ivy, ivy leaf toadflax, mother of a thousand, pennywort	WA	X	4					
219.	*Cynara cardunculus*	artichoke thistle, cardoon, wild artichoke, Scotch thistle	Vic, SA, Tas	HXX	3		Vic, SA, WA, Tas	Vic, Tas, WA, SA	NSW, SA, Tas[4], Vic[4]	Y
220.	*Cynodon dactylon*	Bermuda grass, coarse kweek, common couch, common quickgrass, couch grass, devil's grass, dog's tooth, doob grass, dub grass, finegrass, fingergrass, fingers, Florida grass, Indian couch, quick grass, running grass, Scotch grass, star grass, twitch grass, white quick grass, wire grass, Indian doab	Vic, NSW, Qld, NT, WA	HHXHH						
221.	*Cyperus brevifolius*	mullum bimby couch, globe kyllinga	WA	H	4					
222.	*Cyperus involucratus*	unbrella plant, umbrella sedge, haspan	Qld, WA, NT[3]	XXX	4				Qld, Vic, SA, NSW	Y
223.	*Cyperus rotundus*	purple nutsedge, nutgrass, nutsedge, cocograss, red nutsedge, water grass, red grass, Yaa haeo muu	NSW, Qld, WA	XXH	5		SA, WA	SA		
224.	*Cytisus multiflorus*	white Spanish broom, Spanish broom	Vic	H	4	A	WA			Y
225.	*Cytisus scoparius*	Scotch broom, English broom, broom, Spanish broom, jänönvihmaMonarch BroomAndreanus Broom	Vic, SA, NSW, Tas, Sleeper	HXXXS			NSW, Vic, SA, Tas, WA, ACT	Tas, SA, Vic	WA, NSW, Vic	Y
226.	*Cytisus spp.*		ACT[3]	X			WA, ACT			
227.	*Dactylis glomerata*	orchardgrass, cock's foot, catsgrass, koiranheinä	Vic, Tas	HX	4				NSW, Qld	Y
228.	*Dalbergia sissoo*	Indian dalbergia, sissoo, shisham, skuva, sissu, tali	NT	X	4		NT, WA	NT	NT[4]	Y
229.	*Datura stramonium*	jimsonweed, Jamestown weed, thornapple, common thorn apple, thornapple, mad apple, stinkwort, Embaleki, astanargit, atafaris, boruti, boruto, chayotillo, chemogong, colenso weed, common stinkapple, devil's apple, duling'weki, ebune, estramonio, frizillo, hoja de tapa, hulluruoho, jimson weed, msiafu, olieboom, pula, sikran, silulu, somena, stramonium, tapa, tapate, taturah, tlapa, tlaquoal, toloache, vue luate loco, zambumba	Vic, WA	XX	5		Vic, NT, WA, Tas	Vic, Tas, NT, WA		
230.	*Daucus carota*	Queen Anne's lace, wild carrot	Vic, WA	XX	2		SA, WA			
231.	*Delairea odorata*	cape ivy, German ivy, Italian ivy, African ivy, climbing groundsel	Vic, SA, NSW, Tas, WA, Sleeper	HHXXXS	5		NSW, WA	NSW		Y
232.	*Delonix regia*	flame tree, flamboyant, arbol del fuego, atbot, atbot det fuegu, nangiosákura, nangyo, pilampwoia weitahta, sakuranirow, sekoula, ohai', flame of the forest, flame tree, peacock flower, poinciana, royal poinciana	NT, Sleeper	HS	4				NSW, NT, Qld, WA	Y
233.	*Dianthus plumarius*	feathered pink, wild pink, cottage pink, pink	Tas	X	2					Y
234.	*Dietes bicolor*	fortnight lily, wild yellow iris, African iris, peacock flower	NSW	X					Widely available	Y
235.	*Digitalis purpurea*	foxglove, purple foxglove, common foxglove	Vic, Tas, Sleeper	XXS	4				Tas, Vic, NSW	Y
236.	*Dimorphotheca pluvialis*	Cape marigold, rain daisy, valkosääkukka, weather prophet	Vic, NSW, Tas	XXH	2					Y
237.	*Diplotaxis muralis*	stinking wallrocket, stinking wallrocket, stinkweed, wallmustard, sandrocket, annual wall rocket, stinking diplotaxis, pikkuhieTasinappi	Vic, WA	XX	3					
238.	*Diplotaxis tenuifolia*	slimleaf wallrocket, sand rocket, sand mustard, Lincoln weed, large sandrocket, perennial rocket, perennial wallrocket, wall rocket, flor amarilla	Vic, SA	XX	3		SA, Vic, WA	SA, Vic	NSW, Tas	Y
239.	*Dipogon lignosus*	mila a minute, dipogon, okie bean, Australian pea	Vic, NSW, Qld, Tas, WA	HXXXX	5					
240.	*Dipsacus fullonum*	wild teasel, common teasel, card teasel, venus cup, card thistle, gypsy combs, Fuller's teasel, pikarikarttaohdake	Vic, Tas	XX	4		Vic, WA	Vic	NSW	Y
241.	*Dittrichia viscosa*	false yellowhead, aromatic inula	WA	X	4	A, EE				
242.	*Ecballium elaterium*	squirting cucumber, spitting cucumber, springgurka	Tas	X	3					
243.	*Echium fastuosum*	pride of Madeira, beeshead	Tas	X	2		NSW, WA		NSW, Vic, Tas, WA	Y

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244.	*Echium plantagineum*	Paterson's curse, salvation Jane, blue weed, Lady Campbell weed, purple bugloss, purple echium, purple viper's bugloss, Riverina bluebell, viper's bugloss, ratamoneidonkieli	Vic, SA, NSW, Qld, Tas, NT, WA, ACT	HXXXXXXH	5		NSW, Vic, SA, NT, WA, Tas	NT, WA, SA, Vic		
245.	*Echium vulgare*	blueweed, viper's bugloss, blue echium, blue thistle, blue devil, common vipersbugloss	Vic, ACT	XH	4		NSW, Vic, Tas, WA	Tas, Vic		
246.	*Eichhornia crassipes*	water hyacinth, floating water hyacinth, pickerelweed, Nile lily, water orchid, Phak top chawaa, waterhiasint, jacinto de agua, lirio acuatico, jacinthe d'eau, bung el ralm, mbekambekairanga, ndambendambe ni nga, jal khumbe, bekabekairaga, dabedabe ne ga, jal khumbe, riri vai	Vic, NSW, Qld, NT, WA, ACT	XXXHHH	5		NSW, Vic, Qld, SA, NT, WA, Tas, ACT	Vic, NSW, Qld, Tas, NT, WA, SA		
247.	*Elodea canadensis*	Canadian pondweed, American elodea, oxygen weed, waterweed, elodea, vesirutto, common waterweed	Vic, WA	HX	5		SA, NT, WA, Tas	Tas, NT, WA		
248.	*Epilobium hirsutum*	hairy willow herb, willow herb, hairy willowweed, great willowherb, karvahorsma, codlins and cream	Vic	X	3					
249.	*Equisetum arvense*	field horsetail, scouring rush, western horsetail, horsetail, foxtail, rush, horsetail fern, meadow pine, pine grass, foxtailrush, bottle brush, horsepipes, snake grass, mare's tail, shave grass, coda cavallina	NSW, ACT	XX	4	EA1	NSW, SA, WA, Qld, Tas, Vic, ACT	Vic, NSW, Tas, WA, SA, Qld		
250.	*Equisetum hyemale*	scouringrush, greater horsetail, rough horsetail, kangaskorte, horsetail, common horsetail	Tas, WA, Sleeper	HHS	2	EA1	Vic, NSW, Tas, WA, SA, Qld	Vic, NSW, Tas, WA, SA, Qld	Tas[4]	Y
251.	*Equisetum spp.*	horsetails, scouring rush, common horsetail	Vic, Sleeper	XS		A	Vic, NSW, Tas, WA, SA, Qld	Vic, NSW, Tas, WA, SA, Qld		
252.	*Eragrostis cilianensis*	stinking eragrostis, stink love grass, stink eragrostis, stinkgrass, tanakkaröllinurmikka, candy grass, lovegrass, spreading love grass	Vic, NT, WA	XHX	4					
253.	*Eragrostis curvula*	African lovegrass, Boer lovegrass, weeping lovegrass, Ermelo love grass, weeping grass, wire grass	Vic, WA, ACT, Sleeper	HHSH	5		NSW, Vic, SA, Tas, ACT, WA	Vic, Tas, SA		
254.	*Erica arborea*	tree heath, briar root	Vic, SA, Tas, Sleeper	HHXS	2					Y
255.	*Erica baccans*	berry flower heath, berry heath	Vic, Sleeper	HS	4					Y
256.	*Erica lusitanica*	Spanish heath, Portuguese heath, heath	Vic, SA, NSW, Tas	HHXX	5		WA, Tas	Tas		
257.	*Erica melanthera*		Vic, Sleeper	XS					NSW	Y
258.	*Erica quadrangularis*	angled heath, erica	Vic, Sleeper	HS	2					
259.	*Eriobotrya japonica*	loquat, Japanese plum, Japanese medlar	NSW, Qld, Sleeper	XXS	2				NSW, Vic, Qld	Y
260.	*Erodium cicutarium*	redstem filaree, alfilaree, alfidalaria, pin clover, pin grass, storksbill, heronsbill, filaree, peltokurjennokka, musk heron's bill, pin weed	Vic, Tas, WA	HXH	4					
261.	*Erythrina crista-galli*	cockspur coral tree, crybabytree, Indian coral tree, coral tree	NSW, Sleeper	XS	3		NSW, WA	NSW	NSW, NT, WA	Y
262.	*Erythrina X sykesii*	coral tree	NSW	X	2					
263.	*Eschscholzia californica*	California poppy, tuliunikko	Qld, WA, ACT	XXX	3				NSW, Tas	Y
264.	*Eucalyptus bicostata*	Southern blue gum, Eurabbie, Blue gum, Victorian blue gum	ACT	X					Vic, NSW, WA	Y
265.	*Eucalyptus botryoides*	southern mahogany, blue gum, bangalay	Vic, WA	HX					Vic, NSW, NT, Tas, WA	Y
266.	*Eucalyptus camaldulensis*	Murray red gum, red gum, river red gum, rostrata gum, rooibloekom	NT	H					Widely available	Y
267.	*Eucalyptus citriodora*	lemonscented gum, lemon gum, citron scented gum	NSW, WA	XH					Widely available	Y
268.	*Eucalyptus cladocalyx*	sugar gum, suikerbloekom	Vic, SA, WA	HXH					Vic, NSW, WA, SA	Y
269.	*Eucalyptus globulus*	Tasmanian blue gum, bluegum eucalyptus, blue gum, common eucalyptus	SA, ACT	XX					NSW, Tas, WA, Vic	Y
270.	*Eucalyptus gomphocephala*	tuart, tuart gum	Vic	X					WA, Vic, SA	Y
271.	*Eucalyptus lehmannii*	bush yate, Lehmann's gum, spider gum, spinnekopbloekom, mallee yate	Vic	X					Vic, WA	Y
272.	*Eucalyptus leucoxylon*	yellow gum, white ironbark	Vic	X					Vic, WA	Y
273.	*Eucalyptus maculata*	spotted gum, spotted iron gum	Vic, WA	HH					Widely available	Y

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274.	*Euonymus spp.*	spindle tree, burning bush, strawberry bush, wahoo, euonymus	Vic	X						Y
275.	*Euphorbia helioscopia*	sun spurge, madwoman's milk, wart spurge, wart weed, wart grass, cats milk, sun euphorbia, umbrella milkweed, viisisädetyräkki	WA	X	3					
276.	*Euphorbia hirta*	garden spurge, pillpod spurge, asthma weed, Nam nom raatchasee, asthma plant, hairy spurge, Queensland asthma weed, red euphorbia, red milkweed, snakeweed	NT, WA	XH	4					
277.	*Euphorbia lathyrus*	caper spurge	Vic, Tas, ACT	HXX	4				NSW	Y
278.	*Euphorbia peplus*	petty spurge, milkweed, radium plant, cancer weed, stinging milkweed	Vic, NSW, WA	XXH	4					
279.	*Euphorbia tirucalli*	Indiantree spurge, naked lady, pencil tree, milkbush, Mnyala	Qld	X	1					
280.	*Euryops abrotanifolius*	euryops, geelmagriet	Vic, SA	HX	4					
281.	*Ferraria crispa*	black flag, spinnekopblom	Vic, WA	XX					Vic, NSW	Y
282.	*Festuca arundinacea*	tall fescue, alata fescue, reed fescue, coarse fescue, New Zealand tall fescue,	Vic	H	4					
283.	*Ficus carica*	common ficus, fig tree, edible fig, common fig, aitoviikuna	SA, WA	XH	4				NT, NSW	Y
284.	*Ficus pumila*	climbing fig, creeping rubber plant, fig, creeping fig	NSW	X	2				NSW, NT, Qld, WA	Y
285.	*Foeniculum vulgare*	fennel, aniseed, dill, anise, sweet anise, sweet fennel, hinojo, venkoli, wild fennel	Vic, SA, Qld, Tas, WA, ACT	HXXXXX	5		Vic, Tas, WA	Tas, Vic	NSW, Vic	Y
286.	*Fraxinus angustifolia*	desert ash, narrow leaved ash	Vic, ACT[3]	XX					Vic, NSW	Y
287.	*Fraxinus ornus*	flowering ash, manna ash, manna	Vic	X					NSW, Vic	Y
288.	*Freesia alba x leichtlinii*	freesia, common freesia, wild freesia	Vic, SA, NSW, Qld, Tas, WA	XHXXXH	5					
289.	*Fuchsia magellanica*	fuchsia, hardy fuchsia, lady's eardrops, earring flower, kulapepeiao	Vic, SA, Tas, WA, Sleeper	XXXXS	3				NSW, Vic	Y
290.	*Furcraea foetida*	Mauritius hemp	WA	X	3					
291.	*Galenia pubescens*	coastal galenia, galenia	Vic, WA	XX			NSW, WA			
292.	*Galinsoga parviflora*	galinsoga, smallflower galinsoga, potato weed, gallant soldier, yellow weed, joey hooker, tarhasaurikki, small flowered quickweed, galinsoga weed, chick weed, potato weed, kew weed	NSW	X	5					
293.	*Galium aparine*	cleavers, goosegrass, scratch grass, grip grass, catchweed bedstraw, white hedge, bedstraw, stickywilly, velcro plant, robin run over the hedge, attaccamano, gallio, pega pega	Vic, Tas	HX	3		WA	WA		
294.	*Gazania linearis*	treasureflower, gazania	Vic	X	3					Y
295.	*Gazania x linearis*		SA	X						
296.	*Gazania rigens*	coastal gazania, treasure flower, gazania	SA, NSW, Tas, Sleeper	XXHS	3				Vic, Qld	Y
297.	*Gazania spp.*		Vic	X						Y
298.	*Genista canariensis*	canarybroom, broom	WA	X	2					
299.	*Genista linifolia*	Mediterranean broom, flax leaved broom, flax broom, flaxleaf broom, Dyers' broom, greenwold	Vic, SA, Tas, Sleeper	HHXS	5		Vic, ACT, WA	Vic		
300.	*Genista monosperma*	white weeping broom	SA	X					Vic, NSW, WA	Y
301.	*Genista monspessulana*	French broom, soft broom, canary broom, Montpellier broom, Madiera broom, cape broom, broom, retamo liso	Vic, SA, NSW, Tas, ACT, Sleeper	HHXXSH	5		Vic, Tas, SA, NSW, WA	Tas, SA, Vic, WA		
302.	*Genista stenopetala*	leafybroom	Tas, Sleeper	S	4					
303.	*Geranium molle*	Woodland geranium, dovefoot geranium, pehmytkurjenpolvi, soft cranesbill, cranesbill	Vic, SA	XX	1					
304.	*Gladiolus angustus*	long tubed painted lady	WA	X	4					
305.	*Gladiolus cardinalis*	waterfall gladiolus	WA	X	1				Tas	Y
306.	*Gladiolus caryophyllaceus*	wild gladiolus, sandveldlelie	WA	H	5					
307.	*Gladiolus communis*	byzantine gladiolus, cornflag, etelänmiekkalilja	Vic, Tas	XX					Tas, Vic, NSW, SA	Y
308.	*Gladiolus spp.*	gladiolus, peacock orchid, sword lily	Vic	X					Tas, Vic	Y
309.	*Gladiolus tristis*	evening flower gladiolus, ever flowering gladiolus, gladiolus, marsh Afrikaner	Vic, WA	HX	5				NSW, SA, Tas, Vic	Y

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310.	*Gladiolus undulatus*	wild gladiolus, gladiolus	Vic, SA, WA	HHH	5				Vic	Y
311.	*Glaucium flavum*	horned poppy, yellow horned poppy, yellow hornpoppy, sea poppy, keltaneidonunikko	Vic	X	4					
312.	*Gloriosa superba*	gloriosa lily, glory lily, climbing lily, Rhodesian flame lily, flame lily	NSW, Qld, Sleeper	HXS	5		NSW, WA		Qld	Y
313.	*Glyceria maxima*	tall mannagrass, reed sweetgrass, English water grass, great mannagrass, variegated water grass,	Vic, Tas, WA	HXH	5					
314.	*Gmelina arborea*	white teak, jati putih, candahar, white teak, yemane,	NT	X	2					Y
315.	*Gomphocarpus fruticosus*	swan plant, narrow leaf cotton bush, balloon cotton, cape cotton, duck bush, milkweed, narrow leaved cotton bush, wild cotton	Vic, NSW, Qld, Tas, WA	XXXHX	4		WA	WA	NSW	Y
316.	*Grevillea robusta*	Australian silky oak, silky oak	NSW	X						Y
317.	*Grevillea rosmarinifolia*	rosemary grevillea	Vic, SA, Tas[3], ACT	HXXX					Vic, Tas, NSW, WA	Y
318.	*Gynandriris setifolia*	thread Iris	Vic, SA, WA	HXH					Vic	Y
319.	*Hakea laurina*	pincushion hakea	Vic, SA	HX					Widely available	Y
320.	*Hakea salicifolia*	willow leaf hakea, willowleaved hakea, willow hakea	Vic	H					Widely available	Y
321.	*Hakea sericea*	silky hakea, syerige hakea, silky wattle, needlebush, prickly hakea, needle hakea	Vic, SA	HX					NSW, Tas, Vic	Y
322.	*Hakea suaveolens*	sweet hakea, fork leaved hakea, scented hakea	Vic	H					Vic, NSW, Tas, SA	Y
323.	*Harungana madagascariensis*	botonongolo, djene, harungana, mtunu, mutungulu	Qld, Sleeper	XS	2		Qld	Qld		
324.	*Hebe elliptica*	hebe	Tas	X	2					
325.	*Hedera helix*	English ivy, ivy, needlepoint ivy, ripple ivy, common ivy, murgrna	Vic, SA, NSW, Tas, ACT, Sleeper	HXXXSH	5				NSW, WA	Y
326.	*Hedychium gardnerianum*	kahili ginger, yellow ginger lily, cevuga dromodromo, sinter weitahta, ginger lily	NSW	X	2				Qld, NSW, SA, Vic, NT, WA	Y
327.	*Helianthus tuberosus*	Jerusalem artichoke, girasole, earth apple, maa artisokka	Vic	X	3				Qld, NSW, Vic	Y
328.	*Heliophila pusilla*	heliophila	WA	H	3					
329.	*Heliotropium amplexicaule*	blue heliotrope, wild verbena, clasping heliotrope, purpletop, turnsole, wild heliotrope, verveine sauvage	SA, Qld	XX	5		NSW, WA			
330.	*Heracleum mantegazzianum*	giant hogweed, cartwheel flower, wild parsnip, wild rhubarb, kaukasianjättiputki	Tas, Sleeper	XS	2				NSW	Y
331.	*Hesperantha falcata*	hesperantha	WA	H	5					
332.	*Hexaglottis lewisiae*	yellow hexaglottis	Vic, WA	HH	4					
333.	*Hibiscus diversifolius*	swamp hibiscus	WA	H						
334.	*Hibiscus sabdariffa*	rosella, red sorrel, Jamaica sorrel, karkadè	NT, WA	HH	3					Y
335.	*Hieracium aurantiacum*	orange hawkweed, fox and cubs, Devil's paintbrush	NSW[3], Sleeper	XS		A, EA2	Vic, NSW, Tas, WA	Vic, NSW, Tas	Qld, Tas[4]	Y
336.	*Holcus lanatus*	Yorkshire fog, velvetgrass, tufted softgrass, meadow softgrass, common velvetgrass, karvamesiheinä, mesquite, bambagione pubescente, mesquite grass	Vic, NSW, Tas, WA	HXXH	4					
337.	*Homeria flaccida*	one leaf cape tulip, cape tulip	Vic, SA, NSW, WA	HHXH			NSW, Vic, SA, WA, Tas	Vic, Tas, WA, SA		
338.	*Homeria miniata*	two leaf cape tulip, poison bulb, red tulip, red tulp, cape tulip, rootulup	Vic, SA, WA	HHH	5		NSW, Vic, SA, WA, Tas	Vic, Tas, WA, SA		
339.	*Homeria ochroleuca*	yellow flowered cape tulip, cape tulip, white cape tulip	Vic, SA, WA	XXX	5		NSW, Tas	Tas		
340.	*Humulus lupulus*	hops, common hop, luppolo, wild hop, hop bine	Vic	H	2				Qld, NSW, Tas	Y
341.	*Hura crepitans*	sand box tree, ajuapar, monkey pistol, javillo	NT[3]	X	2					
342.	*Hydrocotyle ranunculoides*	water pennywort, hydrocotyle, floating marshpennywort	WA, Sleeper	HS	4		WA, SA	WA, SA		
343.	*Hygrophila costata*	Temple Weed	NSW[3]	X	5		WA, Qld	Qld		
344.	*Hymenolobus procumbens*	oval purse	WA	H	4					
345.	*Hypericum androsaemum*	tutsan, sweet amber	Vic, WA	HX	5		Vic, WA	Vic, WA	NSW	Y
346.	*Hypericum calycinum*	rose of Sharon, large flowered St John's wort, Aaron's beard, creeping St John's wort	Vic	H	4				NSW	Y
347.	*Hypericum elodes*	marsh St John's wort, bog St John's wort, marsh hypericum	NSW	X	3				NSW	Y
348.	*Hypericum kouytchense*	St. Johnswort	NSW[3]	X						

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349.	*Hypericum perforatum*	common St. John's wort, goatweed, perforate St. John's Wort, klamathweed, St. John's wort, iperico, tipton weed, gammock, goatsbeard, goatweed, herb john, klamath weed, penny john, rosin rose, St. John's grass, tipton weed, touch and heal	Vic, SA, WA, ACT	HXXH	5		WA, Vic, Tas, NSW	Vic, Tas, WA	Qld, Tas[4], Vic[4]	Y
350.	*Ilex aquifolium*	English holly, holly, variegated holly	Vic, SA, NSW, Tas, Sleeper	HXXXS	5				Qld, NSW	Y
351.	*Impatiens walleriana*	balsam, busy lizzy, buzzy lizzy	NSW, Qld, Sleeper	XXS	3				Qld	Y
352.	*Ipheion uniflorum*	spring star flower, springstar	Vic	X	2				Vic, Tas, NSW	Y
353.	*Ipomoea alba*	moonflower, tropical white morning glory, white morning glory, moonvine	NSW, Sleeper	XS	4				NSW, WA	Y
354.	*Ipomoea cairica*	Cairo morningglory, coast morning glory, Messina creeper, mile a minute, mile a minute vine, lunsengansenga	Vic, NSW, Qld, WA	XHXX	5				WA	Y
355.	*Ipomoea indica*	blue morning glory, purple morning glory, oceanblue morning glory, fue moa, purperwinde, morning glory	Vic, NSW, Qld, WA	HHXX	5		NSW, WA	NSW		Y
356.	*Ipomoea purpurea*	tall morningglory, common moringglory, morning glory, purperwinde, wilec purpurowy	NSW, Qld	XX	5					Y
357.	*Ipomoea quamoclit*	cypressvine morningglory, cypressvine, morning glory, star of Bethlehem, cardinal climber, Cupid's flower	NT, WA, Sleeper	HHS	3					Y
358.	*Iris germanica*	German iris, fleur de lis, bearded iris, purple flag, saksankurjenmiekka, ireos	Vic	X	3				Vic, NSW, SA	Y
359.	*Iris pseudacorus*	yellow flag, yellow water iris, iris, paleyellow iris, flag iris	Vic, Sleeper	HS	5				NSW, Vic, SA, Tas	Y
360.	*Iris spuria*	seashore iris, iris, butterfly iris, blue iris	Vic	X					SA	Y
361.	*Iris x germanica*	German iris, fleur de lis, bearded iris, purple flag, saksankurjenmiekka, ireos, orris root	Tas	X	3					
362.	*Ixia flexuosa*	koringblommetjie, ixia	Vic	H	2				VIC, TAS	Y
363.	*Ixia maculata*	spotted African cornlily, geelkalossie, African cornlily, yellow ixia	Vic, WA	XX	3				SA	Y
364.	*Ixia polystachya*	African corn lily, corn lily, variable ixia, koringblommetjie	Vic, WA	XX	2				Vic, Tas	Y
365.	*Ixia viridiflora*	green ixia	Vic	X	1				Vic, NSW	Y
366.	*Jacaranda mimosifolia*	jacaranda tree, black poui, jacaranda, blue Brazilian, Brazilian rosewood, fern tree	NSW, Qld	XX	3				Widely available	Y
367.	*Juncus effusus*	soft rush, Japanese mat rush, common rush, bog rush	Vic	H	5				Vic, NSW	Y
368.	*Kennedia rubicunda*	dusky coral pea, coral pea	Vic, Tas	XX					NSW, Tas, Vic, WA, SA	Y
369.	*Kniphofia uvaria*	red hot poker, torch lily	Vic, SA, Sleeper	XXS	2				Qld, Vic, NSW, WA	Y
370.	*Lachenalia aloides*	lachenalia, Cape cowslip	Vic, WA, Sleeper	XXS	3				NSW, SA, Vic	Y
371.	*Lachenalia reflexa*	Cape cowslip, lachenalia	WA, Sleeper	HS	3	A, EE			Vic	Y
372.	*Lactuca serriola*	prickly lettuce, wild lettuce, China lettuce, compass plant, milk thistle, horse thistle, wild opium	Vic, NT, WA	XXH	3					
373.	*Lagurus ovatus*	hare's tail grass, jänönhäntä, bunnie's tails, hare's foot, rabbit tail grass	Vic, Tas, WA	HXH	4					
374.	*Lantana camara*	lantana, yellow sage, red flowered sage, tick berry, wild sage, prickly lantana, white sage, chiPoniwe, mikinolia hihiu, curse of India, landana, lanitana, rantana, rahndana, tukasuweth, te kaibuaka, talatala, kauboica, latora moa, tatara moa, ros fonacni, latana, lakana, talatala, talatala talmoa, te kaibuaja, taramoa, migiroa, kaumboitha, mbonambulumakau, mbona ra mbulumakau, tokalau, waiwai, taratara hamoa	NSW, Qld, NT, WA	HXHH	5	W	NSW, NT, SA, WA, Tas, Qld	SA,Tas, NT, Qld	NT[4], WA, Vic	Y
375.	*Lantana montevidensis*	trailing shrubverbena, creeping lantana, purple lantana, small lantana, trailing lantana, weeping lantana	NSW, Qld	XX	5		NT, WA, Qld	Qld, NT	NSW, NT[4], Qld[4], Vic, WA	Y
376.	*Lathyrus latifolius*	perennial sweet pea, everlasting pea, broad leaved everlasting, perennial pea	Vic, Tas, WA	XXX	3				Vic	Y
377.	*Lathyrus tingitanus*	Tangier pea, Tangier scarlet pea, Tangier peavine, sweet pea	SA, Tas, WA	HXX	2					

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378.	*Lavandula stoechas*	topped lavender, bush lavender, French lavender, Italian lavender, Spanish lavender	Vic, SA, WA, Sleeper	HHXS	4		Vic, WA	Vic	WA, Vic[4], NSW	Y
379.	*Lavatera arborea*	tree mallow, bushmallow	Vic, Tas, WA	XXH					NSW	Y
380.	*Lavatera cretica*	small tree mallow, rikkamalvikki, lesser tree mallow, Cretan hollyhock, Cornish mallow	Tas, WA	XX						
381.	*Leonotis leonurus*	lion's ear, Cape hemp, lion's ear, lion's tail, minaret flower, red dacha, red dagga, wild dagga, wild hemp	WA	X	3				Qld, NSW, Vic, Tas	Y
382.	*Leonotis nepetifolia*	lion's tail, lion's ear, Christmas candlestick, lulyolwasebe	Qld, NT, WA, Sleeper	XHHS	4		NT, WA	NT		
383.	*Lepidium africanum*	common peppercress, rubble peppercress, pepper cress, pepperweed, birdseed, Cape pepper cress, peppergrass, pepperwort, tonguegrass, African pepperwort	Vic, WA	XX	4					
384.	*Lepidium bonariense*	birdseed, pepper cress, pepperweed, Argentine pepperweed, argentiinankrassi, Argentine cress	NSW, Qld, WA	XXX	4					
385.	*Leptospermum laevigatum*	Australian myrtle, Victorian tea tree, coast tea tree, Australian teatree	Vic, WA	HH					Widely available	Y
386.	*Leptospermum petersonii*	lemon scented tea tree, lemon tea tree	Vic	X					Widely available	Y
387.	*Leucanthemum maximum*	shasta daisy, isopäivänkakkara	Vic	H	3				NSW, Qld, Vic	Y
388.	*Leucanthemum vulgare*	ox eye daisy, päivänkakkara, dog daisy, margriet, marguerite daisy, moon daisy, white daisy, yellow daisy, margaréta biela	Vic, Tas	XX	5		Vic, WA	Vic		
389.	*Leucaena leucephala ssp. glabrata*	American Leucaena	NT[3]	X	5					Y
390.	*Leucojum aestivum*	summer snowflake, London lily, snowflake	SA	X	2				NSW, Qld, Vic, Tas	Y
391.	*Leycesteria formosa*	Himalayan honeysuckle, flowering nutmeg	Vic, NSW, Tas, Sleeper	HXXS	5				NSW	Y
392.	*Ligustrum lucidum*	glossy privet, tree privet, large leaf privet, broadleaf privet, Chinese wax leaved privet, Chinese privet, Nepal privet, privet, wax leaf privet, white wax tree	Vic, NSW, Qld, ACT	XXXX	5		NSW, WA, ACT, Qld	Qld, NSW		
393.	*Ligustrum sinense*	Chinese privet, hedge privet, small leaved privet, privet, Chinese liguster	Vic, NSW, Qld, ACT	XHXX	5		NSW, WA, ACT, Qld	Qld, NSW		
394.	*Ligustrum spp.*	privet	Vic, SA, NSW, Qld, Sleeper	XXXXS						
395.	*Ligustrum vulgare*	common privet, wild privet, golden privet, gewone liguster, European privet, aitalikusteri	Vic, SA, Sleeper	HXS	5					Y
396.	*Lilium formosanum*	lily, Formosa lily, Taiwan lily	Vic, NSW, Qld, Sleeper	XXXS	4		NSW		Vic, NSW	Y
397.	*Lilium lancifolium*	tiger lily	Vic	X					Vic, NSW	Y
398.	*Lilium tigrinum*	tiger lily	Vic	X					Vic, NSW	Y
399.	*Limonium sinuatum*	wavyleaf sealavender, winged sea lavender, notch leaf sea lavender, perennial sea lavander, statice	WA	X	3					
400.	*Linum catharticum*	fairy flax, purging flax, white flax, ahopellava	Tas	X	3					
401.	*Linum trigynum*	yellow flax, French flax	Tas WA	XX	4				NSW, Qld, WA	Y
402.	*Lobularia maritima*	sweet alison, sea alyssum, alyssum	Tas	XX	4					
403.	*Lolium perenne*	English ryegrass, Italian ryegrass, perennial rye grass, raigrás perenne, ryegrass perenne, ryegrass, loglio comune, loglio perenne, englanninraiheinä, lyme grass, strand wheat	Vic, WA	HX	?					
404.	*Lolium temulentum*	darnel, poison ryegrass, bearded ryegrass, annual darnel, myrkkyraiheinä, cheat, darnel ryegrass, dragge, drawke, drunk, poison darnel, poison ray grass, sturdy ryle, Virginian oat	Vic, WA	HH	3					
405.	*Lonicera japonica*	Japanese honeysuckle, Chinese honeysuckle, honekakala, honeysuckle	Vic, NSW, Qld, ACT, Sleeper	HXXSH	5				Qld, NSW, NT	Y
406.	*Lotus corniculatus*	bird's foot trefoil, crowtoes, bloomfell, birdfoot deervetch, ground honeysuckle, cat's clover, broadleaf birdsfoot trefoil	Vic, NSW, Sleeper	HXS						
407.	*Ludwigia palustris*	waterpurslane, marsh seedbox, marsh ludwigia, false loosestrife, water purslane, Hampshire purslane, broad leadfeaf ludwigia	Vic, Sleeper	XS	3				NSW, Vic	Y

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408.	*Ludwigia peploides*	creeping waterprimrose, California waterprimrose, water primrose, yellow water primrose, primrose willow	Qld	X	3				NSW, Qld, Vic	Y
409.	*Ludwigia peruviana*	ludwigia, Peruvian primrose bush, water primrose	NSW, Sleeper	XS	5		Qld, NSW, SA, WA	Qld		
410.	*Lupinus angustifolius*	sinilupiini, narrowleaf lupine, New Zealand blue lupin, bitter lupin, blue lupin	WA	X	4					
411.	*Lupinus arboreus*	tree lupin, yellow bush lupine, bush lupin, coastal bush lupine	Vic, Tas, Sleeper	HXS	4				Vic, NSW	Y
412.	*Lupinus cosentinii*	WA blue lupin, sand plain lupin	WA	H	4					
413.	*Lupinus hybrid*		Alps	X						
414.	*Lupinus luteus*	lupin, keltalupiini, yellow lupin, lupina Ìltá, European yellow lupine, yellow sweet lupin	WA	X	3					
415.	*Lupinus polyphyllus*	virginia pepperweed, poor man's pepper, pepper grass, Virginian peppercress, virginiankrassi	Vic, Sleeper	XS	4				Vic, Tas, NSW	Y
416.	*Lycium barbarum*	matrimony vine, Duke of Argyll's teaplant, Chinese boxthorn, morali, murali, box thorn	Vic, Tas	XX	3					
417.	*Lycium ferocissimum*	African boxthorn, boxthorn, Cape box thorn	Vic, SA, NSW, Qld, Tas, NT, WA, ACT	HHXXXXHX	5		NSW, Vic, Qld, SA, NT, WA, Tas	Vic, Qld, Tas, NT, SA		
418.	*Lygodium japonicum*	Japanese climbing fern, climbing fern	NSW	X	1				Qld, Vic	Y
419.	*Macfadyena unguis-cati*	cat's claw vine, claw vine, catclaw creeper, catclaw trumpet, funnel creeper, katteklouranker	NSW, Qld, Sleeper	XXS	5		NSW, WA, Qld	Qld, NSW	NT	Y
420.	*Malus x domestica*	apple, tarhaomenapuu	Vic, ACT	XX	3				Vic, Tas, NSW, Qld, WA, NT	Y
421.	*Mangifera indica*	mango, am, amba	Qld WA	XX	3				NSW	Y
422.	*Marrubium vulgare*	white horehound, common horehound, horehound, houndsbane, marrube, marvel	Vic, SA, Qld, Tas, ACT	HHXXX	5		NSW, Vic, SA, WA, Tas	Vic, Tas, WA, SA	Qld, Tas[4]	Y
423.	*Marsilea mutica*	nardoo	Tas	H					NSW, Qld,Vic	Y
424.	*Medicago arborea*	tree medick, moon trefoil	Tas	X	2					Y
425.	*Melaleuca armillaris*	giant honey myrtle, mracelet honey myrtle	Vic, SA	HX					Widely available	Y
426.	*Melaleuca decussata*	totem poles, niaouli cajeput, crossed leaved honey myrtle	Vic	H					Widely available	Y
427.	*Melaleuca diosmifolia*	green honey myrtle	Vic	H					Tas, Vic, WA, SA	Y
428.	*Melaleuca hypericifolia*	hillock bush, cajuput, red honey myrtle, tea tree	Vic	H					Widely available	Y
429.	*Melaleuca nesophila*	mauve honey myrtle, showy honey myrtle	Vic	H					Widely available	Y
430.	*Melia azedarach*	Chinaberry, white cedar, Cape lilac, tulip cedar, syringa, Indian bead tree, Persian lilac, maksering, bessieboom, Chinaberrytree, margosa tree, azedarach, bead tree, berry tree, Cape syringa, China tree, Chinese umbrella, Indian lilac, Japanese bead tree, paradise tree, pride of China, pride of Persia, red seringea, South African syringa, Syrian bead tree, Texas umbrella tree	NT[3]	X					Widely available	Y
431.	*Melianthus comosus*	tufted honeyflower	Vic, SA, WA	XXX	3		Vic, WA	Vic	NSW, Vic[4]	Y
432.	*Melianthus major*	honey flower, large honey flower, Cape honey flower	Vic,	X	3				NSW, SA, Tas, Vic	Y
433.	*Melissa officinalis*	melissa balm, lemon balm, balm, bee balm, common balm	Vic,	H					Qld, NSW, Tas, Vic	Y
434.	*Mentha pulegium*	peppermint, pennyroyal, European pennyroyal, pennyroyal mint, puolanminttu	Vic, WA	HX	4				NSW, Tas, Vic, Qld	Y
435.	*Mentha spicata*	spearmint, garden mint, pea mint, mint, lambmint	Vic, WA, Sleeper	HXS	3				Qld, NSW, Tas, Vic	Y
436.	*Mentha x piperita*	peppermint, white peppermint, piparminttu, Eau de Cologne mint, black peppermint	Vic, WA, Sleeper	HXS	2				NSW, Tas	Y
437.	*Mercurialis annua*	annual mercury, mercury, mercury weed, rikkasinijuuri, dog mercury, mercorella comune	WA	X	4					
438.	*Merremia dissecta*	white convolvulus creeper, noyau vine	WA	X	3					
439.	*Mesembryanthemum crystallinum*	crystalline iceplant, ice plant, common iceplant	Vic, SA, Tas, WA	HXHH	5					Y
440.	*Mesembryanthemum nodiflorum*	slenderleaf iceplant, angled ice plant, ice plant	WA	X	4					
441.	*Mimosa pigra*	catclaw mimosa, mimosa, giant sensitive plant, giant sensitive tree, Miyaraap ton, giant mimosa, thorny sensitive plant	NT	H	5	W	Qld, WA, NT, SA	SA, Qld, NT, WA		

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442.	*Mimosa pudica*	sensitiveplant, shameplant, touch me not, shame lady, mimosa, shamebush, action plant, humble plant, live and die, shame weed, vergonzosa	Qld, NT	HH	3		NT, WA	NT, WA	Qld	Y
443.	*Mimulus moschatus*	musk monkeyflower, muskflower, musk, tahma apinankukka	Vic	X	4					
444.	*Monadenia bracteata*	South African orchid weed, South African orchid	SA, WA Sleeper	XHS						
445.	*Moraea bellendenii*	moraea	Vic	H	1				Vic	Y
446.	*Moraea fugax*	peacock lily, uintjie	WA	X	4					
447.	*Moraea setifolia*		WA	X	4					
448.	*Moraea vegeta*	moraea	Vic, WA	HX	4				Vic	Y
449.	*Morus alba*	white mulberry, mulberry, witmoerbei, gewone moerbei, common mulberry	NSW, Qld	XX	3				NSW, Qld, WA, NT	Y
450.	*Murraya paniculata*	orange jasmine, murraya, Chinese box	NSW, Qld	X	4				Widely available	Y
451.	*Myosotis sylvatica*	woodland forget me not, puistolemmikki, wood forget me not	Vic, WA, Sleeper	HXS	3				Tas	Y
452.	*Myriophyllum aquaticum*	parrot's feather, watermilfoil, thread for life, waterduisendblaar, Brazilian water milfoil, parrotfeather	Vic, Qld, Tas, WA, ACT[3]	HXXHX	5		Tas, WA	Tas, WA	QLD, Vic	Y
453.	*Myriophyllum crispatum*	common water mifoil, curling water milfoil	Tas[3]	X					NSW, Vic, Qld	Y
454.	*Narcissus tazetta*	polyanthus narcissus, jonquil, cream narcissus, daffodil	SA, WA	XX	2				Tas, NSW, Vic	Y
455.	*Nassella tenuissima*	white tussock, tussockgrass, finestem tussockgrass, witpolgras	Vic[3]	X			NSW, Vic, SA, WA	NSW, Vic, SA		
456.	*Nassella trichotoma*	serrated tussock, nassella tussock, Yass River tussock, nassella polgras	Vic, ACT	HH	5	W	ACT, NSW, Vic, SA, Tas, WA, Qld	Vic, Qld, Tas, SA		
457.	*Nephrolepis cordifolia*	sword fern, narrow swordfern, erect sword fern, ladder fern, tuberous sword fern, fishbone fern	NSW, Qld	XX			NSW, WA	NSW	Vic, Qld	Y
458.	*Nerium oleander*	oleander, te orian, selonsroos, Ceylon rose, dog bane, double oleander, Laurier rose, rose bay, rose laurel, rose of Ceylon, South Sea rose, sweet scented oleander	Qld, WA	XX	2				NSW	Y
459.	*Nicotiana glauca*	tree tobacco, mustard tree, wild tobacco, wildetabak, Mexican tobacco, coneton, san Juan tree, tobacco plant, akkue musa, cestrum, corneton, free tobacco, jantwak, le tabaque glauque, mahasatpurush, masseyss, palau pazau, satpurush, tabaco cimarron, tabaco de arbol, tabakboom, tabaqueira, tobacco bush, tobacco tree, tombak el gerey	Vic, SA, WA	HXX	3					
460.	*Nothoscordum gracile*	fragrant false garlic, onion weed, slender false garlic	SA, NSW, WA	XXX	3					
461.	*Nymphaea alba*	water lily, white water lily, European white lily	Vic	H	2				NSW	Y
462.	*Nymphaea mexicana*	banana waterlily, yellow water lily, Mexican waterlily	WA	X	3				NSW, Qld	Y
463.	*Nymphaea odorata*	waterlily, fragrant waterlily, American white waterlily	WA	X	2				NSW	Y
464.	*Ochna serrulata*	ochna, mickey mouse plant, bird's eye bush	NSW, Qld, Sleeper	HXS	4		NSW, WA	NSW		Y
465.	*Ocimum basilicum*	sweet basil, common basil, lukalanga, la'au sauga, basil, basilico	WA	X	5				Qld, NSW, Tas	Y
466.	*Oenothera glazioviana*	redsepal evening primrose, reddish evening primrose, evening primrose	Vic, WA	HX	4				NSW	Y
467.	*Oenothera stricta*	common evening primrose, Chilean eveningprimrose, sand primrose, scented eveningprimrose, fragrant eveningprimrose	Vic, WA	XX						
468.	*Olea europaea*	olive, European olive	Vic, SA, NSW, Qld, WA, ACT, Sleeper	HHXXHSX	5		SA, WA		NSW, NT, Qld, Vic, WA	Y
469.	*Onopordum acanthium*	Scotch thistle, cotton thistle, heraldic thistle, silver thistle, woolly thistle, Scotch cotton thistle	ACT	H	5		NSW, Vic, Tas, WA	Vic, Tas		
470.	*Opuntia aurantiaca*	jointed cactus, tiger pear, litjieskaktus, jointed prickly pear	Vic, NSW	HX	5		NSW, Qld, NT, WA, SA	NSW, Qld, NT, WA, SA		
471.	*Opuntia elatior*	prickly pear	WA, Sleeper	XS	4		NSW, Qld, NT, WA, SA	NSW, Qld, NT, WA, SA		

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472.	*Opuntia ficus-indica*	Indian fig, tuna cactus, sweet prickly pear, mission prickly pear, prickly pear, spineless cactus, sweet prickly pear, Boereturksvy, grootdoringturksvy, spiny pest pear	Vic	X	3		NSW, WA, NT	NSW, NT, WA	Qld	Y
473.	*Opuntia robusta*	wheel pear, wheel cactus, bartolona, camuesa, nopal camueso, nopal tápon, sweet purple cactus	Vic, SA	HX	4		NSW, Qld, SA, NT, WA, Vic	Vic, NSW, Qld, NT, WA, SA		
474.	*Opuntia spp.*	cholla, prickly pear, opuncja	Vic, SA, NSW, Qld, NT, WA	XXXXXX			NSW, SA, WA, Qld, NT	NSW, Qld, NT, WA		
475.	*Opuntia stricta*	erect prickly pear, common prickly pear, Araluen pear, common pest pear, Gayndah pear, spiny pest pear, sour prickly pear, suurturksvy, pest pear of Australia, Australian pest pear	Vic, NSW, Qld, WA	HXXX	5		NSW, Qld, SA, NT, WA, Vic	Vic, NSW, Qld, NT, WA, SA		
476.	*Opuntia tomentosa*	woollyjoint pricklypear, prickly pear, velvet tree pear	NSW, Qld	XX	5		NSW, SA, WA, Qld, NT	NSW, Qld, NT, WA, SA		
477.	*Opuntia vulgaris*	drooping prickly pear, barbary fig, drooping tree pear, smooth tree pear, spiny prickly pear, spreading prickly pear, tuna	Vic, WA	HX	1		NSW, Qld, SA, NT, WA, Vic	Vic, NSW, Qld, NT, WA, SA		
478.	*Ornithogalum arabicum*	star of Bethlehem, lesser cape lily	WA	X	2				Qld, Vic, NSW	Y
479.	*Ornithogalum thyrsoides*	African wonder flower, chincherinchee, chinkerinchee, common chinkerinchee, star or Bethlehem, wonder flower, cape lily, black eyed Susan	SA, NSW[3], WA[3]	XXX	2				Vic, NSW, Tas	Y
480.	*Ornithogalum umbellatum*	sarjatähdikki, star of Bethlehem, summer snow flake, star flower, sleepydick, dove's dung, pigeon dung, bird's milk, cape lily, common star of Bethlehem, snowdrops, nap at noon	Tas, WA	XX	3				Qld, NSW, Vic, Tas	Y
481.	*Oryza sativa*	rice, wild rice, red rice, upland rice, domestic rice, paddy rice, jing mi	WA	X	2				Vic	Y
482.	*Oxalis articulata*	pink oxalis, sourgrass, wood sorrel, jointed woodsorrel, shamrock oxalis, pink sorrel, rubra woodsorrel	Vic, SA	XX	4				NSW	Y
483.	*Oxalis bowiei*	David Bowie wood sorrel, Bowie wood sorrel	Vic, WA	XX					Vic, NSW, Tas	Y
484.	*Oxalis caprina*	oxalis	WA	X	2					
485.	*Oxalis corniculata*	yellow wood sorrel, procumbent yellow sorrel, Indian sorrel, sheep sorrel, sourgrass, creeping wood sorrel, creeping sorrel, vinagrillo, tarhakäenkaali, oxalis, wood sorrel, yellow oxalis, creeping lady's sorrel, creeping oxalis	Vic, NSW, Qld, ACT	XXXX	4					
486.	*Oxalis flava*	yellow oxalis	WA	X	2				Vic, Tas	Y
487.	*Oxalis glabra*	finger leaf oxalis	WA	X	2				Vic	Y
488.	*Oxalis incarnata*	pale wood sorrel, pale pink sorrel, lilac oxalis, crimson woodsorrel	Vic, NSW, WA	HXX	3					
489.	*Oxalis obtusa*	primrose wood sorrel, suring	Vic	X	2				Vic, NSW	Y
490.	*Oxalis pes-caprae*	soursob, Bermuda buttercup, African woodsorrel, buttercup oxalis, cape cowslip, oxalis, sorrel, sourgrass, yellow flowered oxalis, yellow sorrel, sour sobs, soursop, wild sorrel, wood sorrel	Vic, SA, WA	HHX	5		Vic, SA, WA	SA, Vic		
491.	*Oxalis polyphylla*		WA	X					NSW, Vic	Y
492.	*Oxalis purpurea*	purple oxalis, purple woodsorrel, grand Duchess, sorrel, large flower wood sorrel, four o'clock	Vic, SA, NSW, WA	HXXX	5				SA, Vic, Tas	Y
493.	*Oxalis spp.*	woodsorrel, oxalis, sorrel, shamrock, lucky clover, good luck plant	Vic, SA, NSW, Qld, WA	XXXXX						
494.	*Oxylobium lanceolatum*	oxylobium	Vic	H						
495.	*Papaver hybridum*	rough poppy, round prickly headed poppy, round rough headed poppy, karvaunikko	Vic, SA, WA	XXX	3					
496.	*Papaver somniferum*	opium poppy, breadseed poppy, poppy, oopiumiunikko	Vic, ACT	XH						
497.	*Paraserianthes lophantha*	stinkbean, brush wattle, Cape wattle, plume albizia, crested wattle	Vic, SA, NSW, Tas	HXXX					WA, Vic	Y
498.	*Parietaria judaica*	pellitory, wall pellitory, spreading pellitory, sticky weed, pellitory of the wall, muuriyrtti	Vic, SA, NSW, WA, Sleeper	XXXXS	3		NSW, WA		Vic, Tas, Qld	Y
499.	*Parkinsonia aculeata*	Jerusalem thorn, parkinsonia, horse bean, retama, Mexican palo verde	SA, NSW, Qld, NT, WA	XXXHH	5	W	Qld, SA, NT, WA, NSW	NSW, Qld, NT, WA, SA		Y

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500.	*Parthenocissus quinquefolia*	Virginia creeper, Boston ivy, Japanese ivy, American ivy, five leaved ivy, woodbine	NSW, Sleeper	XS	2				Vic, NSW, Tas, WA	Y
501.	*Passiflora caerulea*	blue passion flower, common granadilla, grenadilla, passion flower, passion fruit, Braszilian passion flower	Vic	X	2				NSW	Y
502.	*Passiflora cinnabarina*	red passion flower	Vic, Tas	XX					Vic	Y
503.	*Passiflora edulis*	purple granadilla, passion fruit, yellow passion fruit, purple passion fruit, liliko'i, qarandila, vaine tonga, pasio, pompom en wai	NSW, Qld	XX	3				NSW, Qld	Y
504.	*Passiflora mollissima*	banana poka, banana passionfruit, bananaadilla, pink banana passionfruit	Vic, Tas, Sleeper	HXS	3				NSW	Y
505.	*Pelargonium spp.* [2]	geranium, garden geranium	Vic	X						Y
506.	*Pennisetum alopecuroides*	swamp foxtail grass, Chinese pennisetum, Chinese fountaingrass	Vic, Tas, Sleeper	HXS	3				NSW, Vic, WA, Qld	Y
507.	*Pennisetum clandestinum*	kikuyu grass, Yaa kikuyu, kikuyu	Vic, SA, NSW, Qld, WA	HHXXH	4					
508.	*Pennisetum macrourum*	African feather grass, beddingrass	Vic, SA, WA, Sleeper	HXHS	3		Vic, SA, Tas, WA	Vic, Tas, SA		
509.	*Pennisetum purpureum*	elephant grass, napier grass, merker grass, bokso, puk soh, acfucsracsracsr, herbe éléphant, fausse canne à sucre, ilengesongo, iswe bingobingo, napier fodder	Qld, WA, Sleeper	XXS	4					
510.	*Pennisetum setaceum*	fountain grass, crimson fountaingrass, pronkgras, African fountain grass	SA, Qld, WA, NT[3]	XXXX	4		Qld	Qld	Vic	Y
511.	*Pennisetum villosum*	feathertop, longstyle feather grass, feather grass, long styled feather grass, white foxtail, veergras, zacate plumosa	Vic	X	4		NSW, Tas, WA	Tas	NSW	Y
512.	*Persicaria capitata*	persicaria, nuppitatar	NSW	X	2					
513.	*Petasites fragrans*	winter heliotrope	Vic, Sleeper	XS	2					
514.	*Phalaris arundinacea*	reed canarygrass, lady grass, spires, doggers, sword grass, ladie's laces, bride's laces, London lace	Vic	X					Qld	Y
515.	*Phleum pratense*	timothy, Timothy grass, cat's tail grass, herd's grass	Vic, SA, WA, Sleeper	HXXS	4					
516.	*Phoenix canariensis*	Canary Island date palm, phoenix palm	Vic, NSW	XX	3				Qld, NSW, NT, WA	Y
517.	*Phoenix dactylifera*	date palm, arrak, taatelipalmu	WA	H	4				Vic, NT	Y
518.	*Phormium tenax*	New Zealand flax, harakeke, flax	Vic, Tas, Sleeper	XXS	2				Qld, NSW, NT, Vic, WA, SA	Y
519.	*Phragmites australis*	common reed, giant reed, phragmites, common reedgrass canegrass, giant reed grass, ditch reed, reed grass	WA	X					NSW, Tas, Vic, SA	Y
520.	*Phyla canescens*		NSW[3]	X			NSW, WA	NSW		
521.	*Phyla nodiflora*	matgrass, creeping vervain, lippia, frogfruit, carpet weed, condamine couch, no mow, turkey tangle fogfruit	NSW, WA	XH			NSW, WA	NSW	Qld, NSW, Vic, WA	Y
522.	*Phyllostachys aurea*	Phyllostachys aurea Rivière & C. Rivière (GRIN), Phyllostachys bambusoides Sieb. et Zucc. var. aurea (Carr. ex Riv.) Makino (Xie) , Sinoarundinaria aurea Honda (OHRN), Sinoarundinaria reticulata Ohwi var. aurea (Carrière ex A. & C. Rivière) Ohwi	ACT[3]	X	3		NSW, WA	NSW	NSW[4], Qld, WA, Vic	Y
523.	*Phyllostachys bambusoides*	Japanese timber bamboo, giant timber bamboo, madake	NSW	X	3		NSW, WA	NSW	Qld, NSW[4], WA	Y
524.	*Phyllostachys nigra*	black bamboo	NSW	X	3		NSW, WA	NSW	Qld, Vic, WA	Y
525.	*Physalis minima*	gooseberry, wild gooseberry, pygmy groundcherry, native gooseberry, chirphoti, chirpotoka, chirpotyo, papotan, pipat, chinese lanternplant, Thong theng	WA	H						
526.	*Pinus contorta*	lodgepole pine, shore pine, kontortamänty, beach pine	Alps	X	2					
527.	*Pinus elliottii*	slash pine, pine tree, basden	Qld	X	4				Vic	Y
528.	*Pinus halepensis*	aleppo pine, halepensis pine, Jerusalem pine	SA, Sleeper	XS	3		SA, WA		Vic, NSW, SA	Y
529.	*Pinus nigra*	black pine, Austrian pine, Corsican pine	Vic, SA	XX					Vic	Y
530.	*Pinus pinaster*	cluster pine, maritime pine, trosden, wilding pine	Vic, SA, WA, Sleeper	HXHS	5				Vic	Y
531.	*Pinus radiata*	radiata pine, Monterey pine, wilding pine, radiate pine, insignis	Vic, SA, NSW, Qld, Tas, WA, ACT	HHXXXHX	5				Widely available	Y

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532.	*Pinus spp.*	pine, wilding pine	Vic, SA, NSW, Qld, Tas, WA, ACT	XXXXXXX						
533.	*Pistia stratiotes*	water lettuce, tropical duckweed, laitue d'eau, pistie, lechuguita de agua, repollo de agua, apon apon, apoe apoe, beo cai, chawk, Nile cabbage, waterslaai, Nile cabbage, shellflower, water fern, floating aroid, chok	WA, ACT	XH	5		NSW, Qld, NT, WA, ACT	NSW, Qld, NT, WA	Vic	Y
534.	*Pittosporum crassifolium*	karo pittosporum, karo, stiffleaf cheesewood, thick leaved box, dwarfkaro	Vic	X	3					
535.	*Pittosporum eugenioides*	tarata, lemonwood	Vic	X	2				NSW, Vic	Y
536.	*Pittosporum tenuifolium*	kohuhu, black matipo, tawhiwhi	Vic	X					NSW	Y
537.	*Pittosporum undulatum*	Australian cheesewood, Victorian box, mock orange, sweet pittosporum, New Zealand daphne, Victorian laurel, orange pittosporum, wild coffee	Vic, SA, Tas, WA	HHHX			NSW, WA		Qld, NSW, WA, Vic	Y
538.	*Plantago coronopus*	buckhorn plantain, buck's horn plantain, liuskaratamo	Vic, WA	HX	3				NSW, Tas	Y
539.	*Plantago lanceolata*	lance leaved plantain, buckhorn, ribwort plantain, ribwort, English plantain, narrow leaved plantain, buckhorn plantain, rib grass, rat tail, heinäratamo, German psyllium, lamb's tongue, small plantian, wild sago	Vic, NSW, WA	HXX	4				Qld	Y
540.	*Plantago major*	broadleaf plantain, Yaa en yued, great plantain, ribwort plantain, llantén, large plantain, common plantain, dooryard plantain, whiteman's foot, grand plantain, ribwort, ribgrass, narrow leaved plantain, buckhorn plantain, cart track plan, wild sagot	Vic, NSW, WA	XXX	4				Tas	Y
541.	*Platanus hybrida*	plane tree, London planetree	Vic	X					NSW, Vic, WA	Y
542.	*Poa annua*	annual bluegrass, winter grass, kyläнurmikka, fienarola annuale, annual poa, annual meadow grass, annual poa, low spear grass, six weeks grass, goose grass, pasto de invierno, walkgrass	Vic, NSW, WA	XXX	4					
543.	*Podalyria sericea*	silky podalyria	Vic, Tas, WA	XXX	2				Vic, NSW	Y
544.	*Polygala myrtifolia*	sweet pea bush, myrtle leaf milkwort	Vic, SA, NSW, Tas, WA	HHHXX	5					Y
545.	*Polygala virgata*	polygala, purple broom, kalimbesokola	Vic, SA, NSW, Qld, WA, Sleeper	HXXXXS	2					
546.	*Polyscias sambucifolia*	elderberry panax	Tas	H					NSW, Vic	Y
547.	*Pontederia cordata*	pickerelweed, pontederia	Vic	X	2				Vic, NSW, Qld, SA	Y
548.	*Populus alba*	white poplar, silver leafed poplar, abele, silver poplar, poplar	Vic, SA, NSW, WA, ACT, Sleeper	XXXXSH	3				NSW	Y
549.	*Populus nigra*	black poplar, Lombardy poplar, black cherry	Vic, WA, ACT, Sleeper	XXSH					NSW	Y
550.	*Prosopis spp.*	mesquites	Qld, WA, Sleeper	XXS		W	Qld, WA, SA, NT, Vic, NSW	Vic, NSW, Qld, NT, WA, SA		
551.	*Prunella vulgaris*	healall, selfheal, carpenters weedcommon selfheal	WA	X	4				Qld, Tas	Y
552.	*Prunus cerasifera*	cherry plum, myrobalan plum, thundercloud cherry, myrobalan, purple leaf cherryplum	Vic, SA, NSW, ACT	HXXH	3				NSW, Vic, WA	Y
553.	*Prunus laurocerasus*	cherry laurel, common cherry laurel, Portugese laurel	Vic, SA, Sleeper	HXS	3				NSW, Vic, WA	Y
554.	*Prunus lusitanica*	Portugal laurel	Vic	H	3				NSW, Vic, WA	Y
555.	*Prunus persica*	peach, nectarine, persikka,	NSW	X					NSW	Y
556.	*Prunus serotina*	black cherry, rum cherry, wild cherry, kiiltotuomi	ACT, Sleeper	SX	1				NSW, Vic	Y
557.	*Prunus spinosa*	sloe, blackthorn	Vic, Tas	XH	4				NSW, WA	Y
558.	*Psidium guajava*	apple guava, guava, abas, apas, bonongu, guabang, kuabang, guahva, quwawa, koejawel, kuahpa, kuava, amrut, kautoga, ku'ava, kuhfahfah, kautonga, kuawa, goyavier, ku'avu, tu'avu, te kuawa, kuwawa, mpela, nguava, ngguava ni India, yellow guava	NSW, Qld, Sleeper	XXS	5				NSW, Qld	Y
559.	*Psoralea pinnata*	blue psoralea, African scurf pea, dally pine, fountain bush, taylorinna	Vic, NSW, Tas, WA, Sleeper	HXHXS	4				Vic	Y
560.	*Pyracantha angustifolia*	orange firethorn, firethorn, yellow firethorn, geelbranddoring, narrowleaf firethorn	Vic, NSW, ACT, Sleeper	HXSH	5		WA, ACT		NSW, WA	Y

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561.	*Pyracantha crenulata*	Himalayan firethorn, Nepalese white thorn, rooivuurdoring, fire thorn	Vic, ACT	HH	5				NSW	Y
562.	*Pyracantha fortuneana*	Chinese firethorn, firethorn, broad leaf firethorn	NSW, ACT	XH	4		WA, ACT		NSW	Y
563.	*Pyracantha koidzumii*	Formosa firethorn, firethorn	ACT	H	2					
564.	*Pyracantha rogersiana*	fire thorn	ACT	H	5				NSW	Y
565.	*Pyracantha spp.*	firethorn, pyracantha	Vic, NSW, ACT	XXH						
566.	*Quercus ilex*	holly oak, holm oak, belloTas, ballota, evergreen oak	ACT	X	1				Vic, NSW, WA	Y
567.	*Quercus robur*	English oak, pedunculate oak, common oak, truffle oak, oak tree	Vic, ACT	XX	2				NSW, Vic, WA	Y
568.	*Ranunculus muricatus*	roughseed buttercup, sharp buttercup, buttercup, spinyfruit buttercup, prickle fruited buttercup, Scilly buttercup, buttercup	Vic, WA	XX	3					
569.	*Ranunculus repens*	creeping buttercup, ranuncolo strisciante, rönsyleinikki	Vic, NSW, ACT	HXX	4				NSW	Y
570.	*Raphanus raphanistrum*	jointed charlock, wild radish, jointed charlock, white charlock, jointed radish, wild kale, wild turnip, cadlock, rabizon, runch, ravanello selvatico, peltoretikka, sea radish	Vic, WA	XX	5		NSW, WA			
571.	*Reseda lutea*	yellow mignonette, cutleaf mignonette, wild mignonette	WA	X	4		SA, WA	SA		
572.	*Reseda luteola*	wild mignonette, dyer's rocket, dyer's weed, weld, yellow weed	Tas, WA	XX	4		Vic, WA	Vic	Tas	Y
573.	*Retama raetam*	white weeping broom, ratamals, white broom	SA[3], WA[3], Sleeper	XXS	3	A, EE				
574.	*Rhamnus alaternus*	Italian buckthorn, evergreen buckthorn, Mediterranean buckthorn	Vic, SA, WA	HHH	5				Vic	Y
575.	*Rhaphiolepis indica*	Indian hawthorn, cherry laurel	NSW, Qld, Sleeper	XXS	2				NSW, NT, WA, Vic, Qld	Y
576.	*Rhus glabra*	smooth sumac, western sumac	ACT	X						
577.	*Ribes sanguineum*	redflowered currant, flowering currant	Tas	H	3				Vic, NSW	Y
578.	*Ricinus communis*	castor bean, castorbean tree, castor oil bush, castor oil plant, castor oil tree, wonder tree, risiini, kasterolieboom, umFude, umHlafuto, muPfuta, palma christi, African coffee tree, agaliya, gelug, maskerekur, uluchula skoki, mbele ni vavalagi, toto ni vavalagi, utouto, lama papalagi, tuitui, tuitui fua ikiiki, koli, lama palagi, lepo, ricin	Vic, SA, NSW, Qld, NT, WA	XXXXHX	4		NSW, NT, WA	NT	Tas	Y
579.	*Rivina humilis*	baby pepper, bloodberry, coral berry, rouge plant, polo	NSW, Qld, Sleeper	XXS	5					
580.	*Robinia pseudoacacia*	black locust, false acacia, locust tree, yellow locust, witakasia	Vic, SA, NSW, WA, ACT,	HXXXH	5				Vic	Y
581.	*Romulea bulbocodium*	romulea	Vic	X					Vic	Y
582.	*Romulea flava*	frutang	WA	H					Vic	Y
583.	*Romulea minutiflora*	frutang, small onion grass, small flower onion grass	Vic, SA, WA	HXX	3					
584.	*Romulea obscura*	romulea	WA	X	2					
585.	*Romulea rosea*	onion grass, Guildford grass, australis oniongrass, rosy sandcrocus	Vic, WA	HH					Vic	Y
586.	*Rorippa microphylla*	one row water cress, brown watercress, narrow fruited water cress	Tas	X						
587.	*Rorippa nasturtium-aquaticum*	watercress, great water cress, bronkors, green water cress, two row watercress	Vic, Qld, Tas, WA	HXXH					NSW, Qld, Vic, SA	Y
588.	*Rorippa palustris*	marshcress, common yellowcress, bog yellowcress, bog marshcress, yellow watercress, marsh yellowcress, rantanenätti	Vic	H	3					
589.	*Rosa canina*	dog rose, brier rose, rosa canlna	SA	H	4		SA, WA	SA	Qld, Vic	Y
590.	*Rosa rubiginosa*	sweet briar, eglantine, sweet brier, sweet brier rose	Vic, SA, Qld, Tas, ACT	XHXXH	5		NSW, Vic, SA, WA	SA, Vic	Vic, SA	Y
591.	*Rosa spp.*	rose	Vic, SA, Qld, Tas	XXXX						Y
592.	*Rubus discolor*	Himalaya berry, blackberry, Himalayan giant blackberry, armeniankarhunvatukka	Vic, WA	HH	5					
593.	*Rubus fruticosus*	European blackberry, shrubby blackberry, wild blackberry complex, brombeere, bramble, blackberry, braam	Vic, SA, NSW, Qld, Tas, WA, ACT[3]	XXXXXHX		W	NSW, Vic, Qld, SA, WA, Tas, ACT	Qld, Tas, WA, SA, Vic		
594.	*Rubus parvifolius*	Japanese raspberry, western thimbleberry, thimbleberry	Alps	X					NSW, Vic	Y

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595.	*Rumex brownii*	swamp dock, brown dock, hooked dock, slender dock	Vic, Qld	XX						
596.	*Rumex conglomeratus*	dock, sharp dock, cluster dock, saksanhierakka, green dock	Vic, WA	HX	4					
597.	*Rumex crispus*	curly dock, curled dock, curlyleaf dock, narrowleaf dock, sour dock, yellow dock, Lengua de Vaca,	Vic, WA	HX	4					
598.	*Rumex obtusifolius*	bitter dock, broad leaved dock, round leaved dock, tylppälehtihierakka,	Vic	X	3					
599.	*Rumex sagittatus*	climbing dock, red sorrel	Vic	H						
600.	*Ruta graveolens*	common rue, countryman's treacle, garden rue, herb of grace, herb of repentance, rue, herby grass	Vic	X	1				Qld, NSW, Tas, Vic	Y
601.	*Salix alba*	white willow, willow	Vic, ACT[3]	XX		W			Qld[4]	Y
602.	*Salix babylonica*	weeping willow, willow tea	Vic, NSW, Qld, WA, ACT	HXXXH	5				NSW, WA	Y
603.	*Salix cinerea*	grey sallow, gray willow, large gray willow, common willow, tuhkapaju, fen sallow	Vic, ACT[3]	HX		W			Vic	Y
604.	*Salix fragilis*	brittle willow, crack willow, fragile willow	Vic, Tas, ACT[3]	XXX		W				
605.	*Salix nigra*	black willow, black American willow	ACT[3]	X	5	W	NSW, SA, WA, Tas, ACT, Qld	Tas, SA, Qld		
606.	*Salix purpurea*	basket willow, purple osier, purpleosier willow, purple willow	ACT[3]	X	5	W			Vic	Y
607.	*Salix spp.*	willow	Vic, SA, NSW, Tas, Sleeper	HXXXS			NSW, SA, WA, Tas, ACT, Qld	SA, NSW, Qld, Tas		
608.	*Salix viminalis*	osier, koripaju, withy, basket willow, common osier	ACT[3]	X	5	W				
609.	*Salix x sepulcralis var. chrysocoma*	golden weeping willow	NSW, ACT[3]	XX	5	W			NSW	Y
610.	*Salvia verbenaca*	salvia, vervain salvia, wild sage, wild clary	Vic, Qld, WA	HXX	4					
611.	*Salvinia molesta*	water fern, salvinia, water fern, kariba weed, African payal, koi kandy, watervaring, African pyle	Vic, NSW, Qld, NT, WA, ACT	XXXHHH	5	W	NSW, Vic, Qld, SA, NT, WA, Tas, ACT	Vic, NSW, Qld, Tas, NT, WA, SA		
612.	*Salvinia spp.*	watervaring, Kariba weed, watermoss, salvinia, floating fern	Vic, NSW, Qld, NT, WA	XXXXX			Qld, WA	Qld		
613.	*Sambucus nigra*	elder, European black elderberry, common elder, elderberry, musTaselja, sambuco	Tas	X	3				Qld, NSW, SA, Tas, Vic	Y
614.	*Samolus valerandi*	brookweed, seaside brookweed, suolapunka	WA	H	3					
615.	*Sanchezia parvibracteata*		Qld, Sleeper	XS	2					
616.	*Sansevieria trifasciata*	mother in law's tongue, snake plant, viper's bowstring hemp, lengua de suegra	Qld, Sleeper	XS	3				Qld, NSW, Vic	Y
617.	*Sapium sebiferum*	tallowtree, Chinese tallow, popcorn tree, vegetable tallow	NSW	X	4				NSW, Vic, WA, Qld	Y
618.	*Saponaria officinalis*	bouncingbet, soapwort, bouncing bet, sweet Betty, bladder soapwort, China cockle, cockle, cow basil, cow cockle, cow foot, cow herb, cow soap wort, glong, spring cockle, suopayrtti, saponaria	Tas	X	3				Qld, NSW, Tas, Vic	Y
619.	*Scabiosa atropurpurea*	pincushion, mourningbride, pincushion flower, sweet scabious	SA, WA	XX	3					
620.	*Schefflera actinophylla*	schefflera, Australian umbrella tree, Queensland umbrella tree, octupus tree, Australian ivy palm, ivy palm	NSW, Qld	XX					Qld, NT, WA	Y
621.	*Schinus areira*	pepper tree, Californian pepper tree, pepper corn tree, pepperina, Brazilian pepper tree	Vic, SA, NT	HXX	5				NSW, SA	Y
622.	*Schinus terebinthifolius*	Brazilian pepper, Christmasberry, schinus, Florida holly, Brazilian peppertree, christmas berry, wilelaiki, nani o hilo, Christmas berry tree, South American pepper, Brasiliaanse peperboom, Florida holly, faux poivrier, warui	NSW, Qld, WA, Sleeper	XXHS	5		NSW, Qld	Qld	Qld[4], NT	Y
623.	*Scilla peruviana*	Cuban Lily, Peruvian lily, Peruvian jacinth, Peruvian squill, squill	Tas	X	2				NSW, Vic, SA, Tas	Y
624.	*Sedum acre*	mossy stonecrop, stonecrop, wall pepper, yellow stonecrop, yellow sedum, keltamaksaruoho, goldmoss stonecrop, biting stonecrop	Tas	X	4				Qld, NSW, Vic	Y
625.	*Sedum reflexum*	reflexed stonecrop, Jenny's stonecrop, crooked yellow stonecrop	Tas	X	3					
626.	*Selaginella kraussiana*	garden selaginella, Krauss' spikemoss, mossy clubmoss, selaginella, African club moss	Vic	X	3				Vic	Y

No	Species	Common name	Naturalised Where?	Enviro Score [5]	Australian Rating	National importance	Declared Noxious Where? (Jan.2004)	Prohibited from sale/ Where	Available for sale (Aussie Plant Finder)	Available for sale (All references)[1]
627.	*Senecio angulatus*	climbing groundsel, Cape ivy	Vic, SA, Sleeper	HXS	2					
628.	*Senecio elegans*	purple groundsel, purple ragwort, redpurple ragwort	Vic, SA, Tas, WA	HXXX	5					
629.	*Senecio glastifolius*	large senecio, pink ragwort, holly leaved senecio, waterdissel	NSW, WA, Sleeper	XXS	4	A, EE				
630.	*Senecio jacobaea*	tansy ragwort, stinking willy, ragwort, St James wort, stinking willie, common ragwort, jaakonvillakko	Vic, Tas	XX	5		NSW, Vic, SA, WA, Tas	Vic, Tas, WA, SA		
631.	*Senecio vulgaris*	ragwort, groundsel, sticky groundsel, stinking groundsel, wood groundsel, senecione, old man in the spring, grimsel, simson, bird seed, peltovillakko, common fireweed	NSW, WA	XX	4					
632.	*Senna alata*	candle bush, emperor's candlesticks, ringwormshrub, ringwormbush, ringworm senna, empress candle plant, Christmas candle, seven golden candlesticks, candlestick senna	Qld, NT, WA, Sleeper	XHHS	5		NT, WA	NT, WA	Qld	Y
633.	*Senna pendula*	climbing cassia, christmas senna, valamuerto, eastern cassia	NSW, Qld, Sleeper	HXS			NSW, WA	NSW		
634.	*Sherardia arvensis*	field madder, blue field madder, spurwort, herb sherard, meadow bedstraw	Vic, SA, Tas, WA	XXXX	4					
635.	*Sida rhombifolia*	arrow leaf sida, Pretoria sida, Paddy's lucerne, broomstick, common sida, jellyleaf, Queensland hemp, shrub sida, sida retusa, shrub sida, ruutusiida, Cuban jute, mautofu, te'ehosi, motofu, balais, mamafu'ai	NSW, Qld, NT	XXH	4		NT, WA	NT		
636.	*Silene vulgaris*	maiden's tears, bladder campion, nurmikohokki, blue root, rattlebox	Vic, SA, NSW	XXX			SA, WA	SA	SA, NSW, Vic	Y
637.	*Sisymbrium officinale*	hedge mustard, hedge wild mustard, hedge weed, rohtopernaruoho, Erísimo, common hedge mustard	Vic, SA, ACT	XXX	5					
638.	*Sisyrinchium iridifolium*	striped rush leaf, purple eyed grass, blue eyed grass, blue pigroot	Vic, SA, WA	XXX	4				NSW	Y
639.	*Solanum aviculare*	New Zealand nightshade, kangaroo apple, gunyang, koonyang, mayakitch, meakitch, mookitch, poroporo, poroporo, kohoho, bullibulli	SA	X					Vic, NSW	Y
640.	*Solanum jasminoides*	jasmine nightshade, potato vine	NSW	X	4				NSW, Vic, WA, Qld	Y
641.	*Solanum laciniatum*	poroporo, kangaroo apple, koonyang, meakitch, Tasmanian kangaroo apple	WA	X					Vic, Tas, NSW	Y
642.	*Solanum mauritianum*	bugweed, earleaf nightshade, wild tobacco tree, woolly nightshade, bug berry, bugtree, tobacco bush, luisboom	Vic, SA, NSW, Qld	HXXX	5					
643.	*Solanum nigrum*	black fruited nightshade, black nightshade, blackberry, chiSungubvana, common nightshade, deadly nightshade, duscle, enab el dib, erba morella, garden huckleberry, garden nightshade, harsh, hierba mora, hound's berry, i Xabaxaba, inkberry, makoy, maniloche, maria preta, Ma waeng nok, moralle, musaka, muSungusungu, muTsungutsungu, native currants, nightshade, petty morel, poison berry, potato bush, stubbleberry, tomato bush, wild currants, wonderberry, woody nightshade	Vic, NSW, Qld, NT, WA	HXXXH	5					
644.	*Solanum pseudocapsicum*	false capsicum, Jerusalem cherry, Madeira wintercherry, Natal cherry, winter cherry, Madeira winter cherry	Vic, NSW	HX	4					
645.	*Solanum seaforthianum*	potato creeper, Brazilian nightshade, Italian jasmine, climbing nightshade	NSW, Qld	XX	5				NSW, NT, WA	Y
646.	*Soleirolia soleirolii*	baby's tears, mother of thousands, helxine, angel's tears, Corscian carpet plant, Corsican curse, Irish moss, Japanese moss, mind your own business, peace in the home, Pollyanna vine, touch me not,	WA	H	3				Qld, Vic, WA	Y
647.	*Sollya heterophylla*	bluebell creeper, Australian climbing bluebell	Vic, SA, Tas[3], ACT	HXXX					NSW, Tas, Vic, WA, SA	Y
648.										

No	Species	Common name	Naturalised Where?	Enviro Score [5]	Australian Rating	National importance	Declared Noxious Where? (Jan.2004)	Prohibited from sale/ Where	Available for sale (Aussie Plant Finder)	Available for sale (All references)[1]
649.	*Sonchus oleraceus*	annual sow thistle, common sow thistle, hare's lettuce, colewort, milk thistle, kaalivalvatti, grespino comune, Cerraja	Vic, SA, NSW, Qld, Tas, NT, WA	HXXXXXH	4					
650.	*Sorbus aucuparia*	European mountain ash, mountain ash, rowan	Tas	X	2				NSW, Vic	Y
651.	*Sorbus domestica*	serVice tree, serVice tree arran	ACT	H	2					Y
652.	*Sparaxis bulbifera*	sparaxis, fluweelblom, harlequin flower	Vic, SA, WA	HHH	5					
653.	*Sparaxis grandiflora*	plain harlequin flower, sparaxis	WA	H	4				Tas, SA	Y
654.	*Sparaxis pillansii*	harlequin flower, wandflower, tricolor harleqin flower	Vic, SA, WA	HHX	3					
655.	*Sparaxis tricolor*	wandflower, harlequin flower, tricolor harleqin flower	Vic, WA	XX	3				Qld, Vic	Y
656.	*Spartina spp.*	cordgrass, spartina, marsh grass	Vic	X						
657.	*Spartina x townsendii*	Townsend's cord grass, spartina hybrid, rice grass	Vic	H	3					
658.	*Spartium junceum*	Spanish broom, gorse, weaver's broom, Spaanse besem	Vic, SA, ACT	XXH	2				WA, NSW	Y
659.	*Spathodea campanulata*	African tulip tree, fireball, fountain tree, tulipier du Gabon, pisse pisse, rarningobchey, tuhke dulip, tiulipe, taga mimi, flame tree	Qld, NT, Sleeper	XXS	3		WA, Qld	Qld	NT, WA	Y
660.	*Spergularia marina*	sand spurrey, sea spurrey, perennial sea spurrey, lesser sea spurrey	Vic	X						
661.	*Stachytarpheta cayenensis*	Cayenne snakeweed	NT	X	4		WA, NT	NT		
662.	*Stachytarpheta jamaicensis*	Light blue snakeweed	NT	X	5		WA, NT	NT		
663.	*Stellaria media*	chickweed, common chickweed, starwort, starweed, winterweed, satin flower, mouse eared chickweed, pihatähtimö, esparguta, capiquí, bindweed, tongue grass, white bird's eye	Vic, SA, NSW, Qld, WA	HXXXX	4				Qld	Y
664.	*Stenotaphrum secundatum*	St. Augustine grass, buffalograss, crabgrass, pimento grass, Cape kweek, Cape quick grass, carpet grass, coarse couch grass, coarse quick grass, coastal buffalo grass, coast kweek, couch grass, grove kweek, mission grass, quick grass, ramsammy grass, seaside quick grass	Vic, SA, NSW, WA	HXXH	3				NSW	Y
665.	*Symphytum officinale*	common comfrey, English comfrey, comfrey, knitbone, rohtoraunioyrtti, consolida maggiore	Vic	X	4				Qld, NSW, Vic, Tas	Y
666.	*Tagetes minuta*	wild marigold, stinking Roger, Mexican marigold, stinkweed, tall khaki weed, muster John Henry, chinchilla, pikkusamettikukka, mbanda, little marigold	SA, NSW, Qld, WA	XXXX	4					
667.	*Tamarix aphylla*	athel, tamarisk, athel pine, athel tree, flowering cypress, athel tamarisk	SA, NT, WA, Sleeper	HHHS	5	W	NT, SA, WA, Tas, Qld	SA, Qld, Tas, NT	WA	Y
668.	*Tamarix ramosissima*		NSW, Qld, WA	XXX	4				NSW, NT	Y
669.	*Taraxacum officinale*	common dandelion, English dandelion, dandelion, little marsh dandelion, bog dandelion, lesser dandelion, tarassaco, Diente de león, lion's tooth, blowball, cankerwort, door head clock, milk witch, puffball, witch's gowan, yellow gowan	Vic, SA, NSW, Tas, WA	XXXXX	4				Qld, NSW, Tas	Y
670.	*Tecoma stans*	yellow trumpetbush, yellow bells, yellow elder, tagamimi, piti, peeal, trovadora, geelklokkies	Qld, NT[3]	XX	4		Qld, WA	Qld	NT, Qld[4], WA	Y
671.	*Teesdalia nudicaulis*	shepherd's cress, barestem teesdalia	Tas	H	4					
672.	*Tetrapanax papyrifer*	aralia, ricepaper plant	ACT	X	3				NT	Y
673.	*Teucrium scorodonia*	curled woodsage, woodsage, woodland germander, kelta akankaali	Tas	H	2				NSW, Tas	Y
674.	*Thlaspi arvense*	field pennycress, pennycress, Frenchweed, fanweed, stinkweed, bastard cress, mithridate mustard, devil weed, carraspique, fan weed, mithridate mustard	Tas	X	2		WA	WA		
675.	*Thryptomene calycina*	Grampians thryptomeme	Vic	H					Vic, Tas, WA, SA, NSW	Y
676.	*Thunbergia alata*	blackeyed Susan vine, kakobakansimba, Waew taa	NSW, Qld, Sleeper	XXS	5				Vic	Y

No	Species	Common name	Naturalised Where?	Enviro Score [5]	Australian Rating	National importance	Declared Noxious Where? (Jan.2004)	Prohibited from sale/ Where	Available for sale (Aussie Plant Finder)	Available for sale (All references)[1]
677.	*Thunbergia grandiflora*	blue thunbergia, thunbergia, blue trumpet vine, Bengal clock vine, blue skyflower, blue trumpet vine, clock vine, sky flower, sky vine, large flowered thunbergia	Qld, NT, Sleeper	XHS	5		Qld, WA	Qld	NSW, NT, WA	Y
678.	*Thunbergia laurifolia*	laurel clockvine, blue thunbergia, blue trumpet vine, laurel clock vine, purple allamanda, sky flower	Qld, NT, Sleeper	XHS	4	A, EE	Qld, WA	Qld	NT	Y
679.	*Tipuana tipu*	rosewood, tipoeboom, tipu tree, pride of Bolivia	Qld	X	3	A, EE			NSW, NT, Qld, Vic, WA	Y
680.	*Tolpis barbata*	tolpis, European umbrella milkwort, partavaunikki	WA	X	4					
681.	*Trachycarpus fortunei*	fan palm, Chusan fan palm, Chinese windmill palm, Chinese fan palm, hemp palm	Vic	X					Qld, NSW, NT, WA	Y
682.	*Tradescantia albiflora*	wandering jew, wandering creeper	Vic, SA, NSW, Qld, Tas, WA, ACT	HXHXXXX	5					Y
683.	*Tragopogon porrifolius*	common salsify, Jerusalem star, Joseph's flower, oyster plant, persbokbaard, purple goat's beard, purple salsify, salsify, swart wortel, vegetable oyster, wild salsify, wilde skorsenier	Vic, SA, Tas, WA, ACT	XXXXX	4					
684.	*Trifolium pratense*	red clover, cow grass, trifoglio rosso, purple clover	Vic, WA	XX					Qld, Tas	Y
685.	*Trifolium repens*	white clover, Dutch clover, honeysuckle clover, white trefoil, purplewort, trébol blanco, white Dutch clover, ladino clover	Vic, NSW, WA	HXX	4					
686.	*Trifolium uniflorum*	oneflower clover	Tas	X	2					
687.	*Tripleurospermum inodorum*	scentless chamomile, scentless mayweed, peltosaunio	Tas	H						
688.	*Triticum aestivum*	wheat, pisi ka hola, bread wheat, common wheat, trigo	Vic	X	2					
689.	*Tritonia crocata*	orange tritonia, mosselbaaikalkoentjie	Vic	X	2				Vic, NSW, Tas	Y
690.	*Tritonia lineata*	lined tritonia, bergkatjietee	Vic, Tas, WA	XXX	3				Vic, NSW	Y
691.	*Tritonia squalida*	tritonia, kalkoentjie, pink tritonia	Vic	X	1				Vic, NSW	Y
692.	*Tropaeolum majus*	garden nasturtium, Indian cress, tall nasturtium, nasturtium	Vic, SA, NSW, Qld, WA	XXXXX	3				NSW, Tas, Vic	Y
693.	*Typha orientalis*	raupo, broad leaf cumbungi, cumbungi	WA	H						
694.	*Typha spp.*	cumbungis, bulrush, totora, cattail	Vic, WA	XX			WA, Tas	Tas		
695.	*Ulex europaeus*	gorse, common gorse, whin, furze, European gorse, piikkiherne, Gaspeldoring,	Vic, SA, NSW, Tas, WA, ACT	HHXXXH	5	W	NSW, Vic, SA, WA, Tas, ACT, Qld	Vic, Qld, Tas, WA, SA		
696.	*Ulmus procera*	English elm, Dutch elm, common elm	SA	X	2				NSW, Vic, WA	Y
697.	*Urena lobata*	Caesar's weed, urena weed, pink flowered Chinese burr, hibiscus burr, dadangsi, dadangsi apaka, dadangsi machingat, dádangse, chosuched e kui, karap, korop, nognuk, osuched a rechui, motipo, mautofu, mo'osipo, manutofu, qatima, gataya, jute africain, nggatima, sachayute, cadillo	Qld	X	5					
698.	*Urtica dioica*	stinging nettle, common stinging nettle, slender nettle, California nettle, tall nettle, perennial nettle, ortica, greater nettle, European perennial nettle, common nettle, Swedish hemp, great stinging nettle	WA	X	1				Qld, Tas	Y
699.	*Urtica urens*	burning nettle, stinging nettle, common stinging nettle, small nettle, dwarf nettle, rautanokkonen, ortica minore, annual stinging nettle, nettle, bush nettle, bush stinging nettle	Vic, Qld, WA	XXX	4					
700.	*Verbascum blattaria*	moth mullein, kesätulikukka	Vic	X	3				SA	Y
701.	*Verbascum thapsus*	woolly mullein, flannel plant, common mullein, big taper, velvet dock, velvet plant, flannel leaved mullein, ukontulikukka, Jacob's staff, great mullein, Aaron's rod, blanket weed, candlewick, flannel leaf, shepherd's club	Vic, Qld, ACT	HXX			Vic, WA	Vic	Qld, Tas	Y
702.	*Verbascum virgatum*	twiggy mullein, wand mullein, slender mullein, purplestamen mullein, mullein, virgate mullein, wand mullein, candle stick, moth mullein, Aaron's rod, green mullein	Vic, Qld, ACT	HXX	4					
703.	*Verbena aristigera*		NT[3]	X	4					Y

No	Species	Common name	Naturalised Where?	Enviro Score [5]	Australian Rating	National importance	Declared Noxious Where? (Jan.2004)	Prohibited from sale/ Where	Available for sale (Aussie Plant Finder)	Available for sale (All references)[1]
704.	*Verbena bonariensis*	tall vervain, Argentine vervain, cluster flowered vervain, verbena, purpletop vervain, wild verbena, purple top, purple top verbena, jättiverbena	Vic, NSW, Qld, Tas, ACT	XXXXX	3				SA	Y
705.	*Verbena officinalis*	European vervain, common verbena, pigeon's grass, holy herb, vervain, Nang dong laang, herb of the cross, wild verbena, herba sacra, herba veneris	Qld	X	3				Qld	Y
706.	*Viburnum tinus*	laurustinus	Vic	X	3				Widely available	Y
707.	*Vigna radiata*	mung bean	WA	H						
708.	*Vinca major*	bigleaf periwinkle, periwinkle, greater periwinkle, vinca, band plant, blue buttons, blue perwinkle	Vic, SA, NSW, Tas, ACT	HXXXX	5				NSW	Y
709.	*Vinca minor*	periwinkle, pikkutalvio, greater periwinkle, lesser periwinkle, common periwinkle, vinca	Vic, SA, NSW, Tas, WA, ACT	XXXXXX	4				NSW, Vic	Y
710.	*Viola odorata*	sweet violet, violet, English violet, florist's violet, garden violet, sweet viola, violet, violet tea, common violet	Vic, SA, NSW, WA, ACT	XXXXX	3				Qld, NSW, Vic, WA	Y
711.	*Viola riviniana*	Common Dog Violet	Vic, NSW[3]	XX	2				NSW	Y
712.	*Washingtonia filifera*	cotton palm, California fan palm, Washington palm, cabbage palmetto, palma de Castilla, fan palm, American cotton palm	Vic, WA, NT[3]	XXX	4				NT	Y
713.	*Washingtonia robusta*	Mexican Washingtonia, Mexican fan palm, desert palm, palma colorada, skyduster, Mexican Washington palm, Washington fan palm	WA	X	4				NSW, NT, WA	Y
714.	*Watsonia borbonica*	rosy watsonia, cape bugle lily	WA	H	5				Vic, Tas	Y
715.	*Watsonia bulbillifera*	wild watsonia, bulbil watsonia, bugle lily, Merian's bugle lily, watsonia	Vic, SA, NSW, Tas, WA	XHXXH	5		Vic, SA, WA	SA, Vic		
716.	*Watsonia marginata*	bordered watsonia, fairy watsonia, fragrant bugle lily, watsonia	Vic, WA	XH	4				Vic, Tas	Y
717.	*Watsonia versfeldii*	watsonia	Vic, WA	HX	4					
718.	*Wedelia trilobata*	wedelia, Singapore daisy, dihpw ongohng, ngesil ra ngebard, rosrangrang, atiat, ate, creeping oxeye	Qld, NSW	XX	5				NT, WA	Y
719.	*Zantedeschia aethiopica*	arum lily, calla lily, Egyptian lily, florist's calla, garden calla, Jack in the pulpit, lily of the Nile, pig lily, turmpet lily, white arum lily	Vic, SA, Tas, WA	HXXH	5		WA	WA	NSW, Qld, Vic, Tas, SA	Y
720.	*Zinnia elegans*	wild zinnia, elegant zinnia, zinnia	Qld	X	3					
721.	*Ziziphus mauritiana*	Chinee apple, Indian jujube, Chinese date, jujube	Qld, NT	XX	5		Qld, NT, WA	Qld, NT, WA		

Source: Derived from Randall, R. and Kessal, O. (2004). *National List of Naturalised Garden Plants*. WWF-Australia, Sydney.

Notes

[1] All references for 'Available for sale' category include Aussie Plant Finder (2002), Norfolk Press Species List (Nationally) and Larkman Nurseries-Victoria sale catalogue (Feb 2004).

[2] On the National Alert list, *Pelargonium alchemilloides* is listed, whereas the current list of naturalised garden plants available for sale includes all *Pelargonium spp.*

[3] The species have been recently added to the State or Territory list as naturalised plants. As there is uncertainty regarding their environmental score, they have been given a status of "Environmental weed (X)" by default in the current analysis. Simultaneously, some species are naturalised in the Alps and are given (X).

[4] Refers to those species identified in *Aussie Plant Finder* (2002) as available for sale that were subsequently prohibited for sale in the given state. It is assumed that these species have been either subsequently withdrawn by nurseries in the given state to comply with state laws, or are now being sold illegally.

[5] The "enviro score" is combined according to the "Naturalised Where" States' order.

?: Australian rating varies for each subspecies and/or varieties of the species.

Key to symbols

Environmental score

H	Significant environmental weed
X	Environmental weed
S	Sleeper

National Importance

Q	Naturalised garden plants on Northern Australia Quarantine Strategy (NAQS) list
A	Naturalised garden plants on the National Environmental Alert list
EE	Naturalised non-native garden plants target for national eradication and impacting natural ecosystems
EA1	Naturalised non-native garden plants target for national eradication and impacting agricultural ecosystems for eradication or being eradicated at present
EA2	Naturalised non-native garden plants target for national eradication and impacting agricultural ecosystems recommended for eradication
W	Naturalised garden plants on the 'Weeds of National Significance' (WONS) list

Australian Rating

The agreed categories for assessing the status of naturalised non-native species in natural ecosystems were (Groves *et al.,* 2003):

0	Reported as naturalised but only known naturalised population now removed or thought to be removed
0?	Uncertainty as to whether any plants exist
1	Naturalised and may be a minor problem but not considered important enough to warrant control at any location
1?	Uncertainty as to whether a small number of plants remain
2	Naturalised and known to be a minor problem warranting control at 3 or fewer locations within a State or Territory
3	Naturalised and known to be a minor problem warranting control at 4 or more locations within a State or Territory
4	Naturalised and known to be a major problem at 3 or fewer locations within a State or Territory
5	Naturalised and known to be a major problem at 4 or more locations within a State or Territory
?	Information not available at present.

Appendix 2. Fact Sheets for the ten most mportant garden plants in each Australian State or Territory

NEW SOUTH WALES

BANANA PASSION FRUIT (NSW-1)

Passiflora tarminiana
= Passiflora mollisima

Passifloraceae

Native to tropical South America

Weed, Quarantine Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed

Also known as Banana poka, Pink banana passionfruit

Banana passionfruit is a vigorous evergreen climber which grows up to 20m scrambling over buildings, fences and smothering other vegetation. Leaves are alternate, three lobed and dark green. Spiral tendrils emerge from the leaf axils.

The drooping pink flowers are borne singly. Fruit is an oblong berry initially green but ripening to yellow containing sweet pulp and up to 200 seeds.

Banana passionfruit spreads vegetatively and by seed dispersed by birds, pigs and foxes which have eaten the fruit. It is naturalised and becoming an increasing problem near Melbourne and Sydney where it invades sheltered damp areas in bushland and forest. It is widely available in nurseries and markets.

References: 1,2,14

BROOM (NSW-2)

Cytisus scoparius

Fabaceae

Native to Eurasia

Weed, Quarantine Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

The genus *Cytisus* contains 33 species of evergreen or deciduous shrubs or small trees without thorns. Scotch broom , *Cytisus scoparius*, and its different forms are the most commonly planted species. It is a shrub or small tree growing to 3m tall. The small leaves are shed during summer. Flowers are pea-shaped, of various colours and borne prolifically. Fruits are flattened pods which split on hot days and expel the seeds. Some seeds germinate immediately while others may lie in the soil for many years before germinating. It is reported that seeds stored for eighty years have still germinated. It is highly flammable and can change the fire regime of an area.

Seed levels in the soil are often high; up to 11,000 seeds per sq metre have been recorded at Barrington Tops and 20,000 per sq metre near Braidwood NSW. (Hosking, pers. comm.).

Scotch broom is a naturalised weed in New Zealand, Hawaii, Iran, India, South Africa and the United States of America.

In Australia it occupies about 200,000has in the ACT, NSW, Victoria, Tasmania and South Australia and competes with native shrubs and understorey plants. In NSW it occupies about 10,000 ha at Barrington Tops and is also a problem in the Central and Southern Tablelands.

It is one of 49 naturalised non-native species which are having a direct impact on rare and threatened species. Scotch broom was introduced as an ornamental early in the 19th century and was listed in several Victorian nursery catalogues in the 1860s. It is now regarded as weedy under appropriate legislation in NSW, Victoria, South Australia and Tasmania.

References: 1,2,3,16

CAT'S CLAW CREEPER (NSW-3)

Macfadyena unguis-cati

Bignoniaceae

Native to Brazil

Weed, Quarantine Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Casual Alien

Also known as Cat's claw vine, Claw vine, Cat's claw trumpet, Funnel creeper

Cat's claw creeper is an aggressive woody vine which can climb to a height of 30m with a stem diameter of 150mm. The leaves are trifoliate with tapering oblong leaflets and the terminal leaflet has a claw-like tendril. It produces long seed pods with flattened wind-dispersed seeds.

Root tubers and stem runners which root into the soil aid in the spread of this weed. Seed is spread by wind and water and tubers by flood movement of infested soil. Cat's claw creeper invades disturbed rainforest and riverbanks and can smother other vegetation causing it to collapse. It may also form a dense, thick carpet and smother native ground flora. It is a serious weed in northern NSW. It was ranked second out of 66 environmental weeds assessed for current and future level of impact in southeast Queensland.

Cat's claw creeper was introduced as a fast growing climber and was listed in many Victorian nursery catalogues between the 1850s and 1880s. It is still sometimes sold in nurseries.

References: 1,2,6

GLORY LILY (NSW-4)

Gloriosa superba

Liliaceae

Native to Africa

Weed, Naturalised, Garden Escape, Environmental Weed

Glory lily is an herbaceous annual climber with subterranean, perennial tubers and red and yellow flowers. It has been cultivated as a garden ornamental for many years. It is propagated by division or seed which may remain dormant for 6-9 months.

The plant contains alkaloids similar to colchicine and has been recorded as a cause of poisoning in humans (Everist, 1981). The rootstock is believed to be more toxic than other parts of the plant. It has been harvested so heavily for the pharmaceutical trade that it is now threatened in some parts of India.

Glory lily was recorded as naturalised in 1972 (Groves *et al.*, 1997). It is now a serious weed on Moreton Island and along the North Coast of NSW. It forms dense understorey carpets in coastal dune systems and competes strongly with native flora. It colonises bare soil after Bitou bush control and has been recorded with up to 70 stems per sq m. (www.agric.nsw.gov.au/weeds).

It is listed for sale in nurseries in Queensland, Northern Territory and Victoria.

References: 1,7,19

HOLLY LEAFED SENECIO (NSW-5)

Senecio glastifolius

Asteraceae

Native to southern Africa

Weed, Quarantine Weed, Naturalised, Native Weed, Garden Escape, Environmental Weed

Also known as Pink ragwort and Large senecio

Senecio is one of the largest genera of flowering plants with over 1200 species. Holly leafed senecio is a many-branched small shrub which grows up to 2m tall and becomes woody at the base. The daisy-like, mauve-pink flowers are borne on long stalks. Seed is produced abundantly and wind blown to become weedy.

Holly leafed senecio is a major environmental weed in New Zealand and a weed within its natural range in South Africa. It prefers sandy soils and crowds out native vegetation. It is naturalised in Western Australia near Albany and in NSW near Bundeena south of Sydney.

References: 1,2,10

HYBRID MOTHER OF MILLIONS (NSW-6)

Bryophyllum daigremontianum
x Bryophyllum delagoense cv. 'Hougtonii'

Crassulaceae

Horticultural origin

Naturalised

Bryophyllums are succulent perennial herbs with fleshy mottled stems and leaves. Flowers are orange, yellow or red on stalks held above the foliage. Plants may form on the parent plant or regrowth may occur from tiny leaves or stems on the ground.

This plant is spread by plantlets carried by water in streams and rivers and by plantlets attached to animals and in mud. Virtually no seed is produced.

It is widespread in southeast Queensland but not as common as *B. delagoense*. It is locally common in northern NSW where it grows near houses or where dumped as garden waste; it is also spreading along watercourses. Plants, particularly flowers, are poisonous to stock.

This plant may be sold under the former name of Kalanchoe.

References: 1,19,20

LIPPIA (NSW-7)

Phyla canescens

Verbenaceae

Native to South America.

Weed, Noxious Weed, Naturalised

Lippia is a ground-hugging perennial with small opposite grey-green leaves sometimes toothed towards the tips. The stems root freely. Flower heads are circular held above the foliage and pink to white in colour.

Lippia spreads mainly by pieces broken from the main plant but also by seed. It was introduced as a lawn substitute as it requires very little water. It is an important weed of inland NSW usually downstream of irrigation areas where it was used for bank stabilisation along channels. It appears capable of suppressing other low vegetation.

It is closely related to the native *Phyla nodiflora* which occurs naturally in northern Australia but has become naturalised in southern parts of the country.

References: 1,4

MADEIRA VINE (NSW-8)

Andredera cordifolia
= Boussingaultia baselloides
= Boussingaultia cordifolia

Basellaceae

Native to South America

Weed, Naturalised

Other common names include Lamb's tails, Jalap, Mignonette vine

Madeira vine is a vigorous climber which can smother trees and other vegetation causing it to collapse. The glossy alternate leaves are fleshy and broadly egg-shaped with a rounded tip. Flowers are small and borne in clusters. They are sweetly scented and initially pale cream but soon darken.

A distinguishing feature of Madeira vine is the aerial tubers which form on the stems and develop roots when they drop to the ground. Madeira vine can grow to 10 m in one growing season . It also has underground tubers which float in both salt and fresh water and may be spread in clearing operations and eroding soil.

Madeira vine tolerates a wide range of soils, is drought- and frost-hardy and is believed to be poisonous to stock.

It is naturalised in all states except South Australia. In Western Australia it occurs along creeklines on the Swan Coastal Plain. Madeira vine was ranked fourth out of 66 environmental weeds in southeast Queensland assessed for their current and future level of impact. Currently, it is rare in Victoria and Tasmania but its frost hardiness may aid its expansion southwards. In NSW it is a major weed of coastal urban areas and edges of rainforests where it may smother other vegetation. It is also spreading into inland areas such as around Tamworth.

References: 1,2,14,17

MOTHER OF MILLIONS (NSW-9)

Bryophyllum delagoense
= Kalanchoe delagoense

Crassulaceae

Native to Madagascar

Weed, Quarantine Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed

Mother of millions is a perennial shrublet growing to 2m . The stem is erect and unbranched. The grey-green leaves are round in cross section. Purple, yellow and orange flowers are borne in winter. Abundant seed is produced. Plants, particularly flowers, are poisonous to stock.

Mother of millions spreads by seed and plantlets carried by water and by seed and plantlets attached to animals and in mud. It occurs in coastal NSW and was ranked third out of 200 species of invasive naturalised species in southeast Queensland. It grows mostly near houses and where garden waste has been dumped.

It can be controlled by fire if there is sufficient fuel.

Mother of millions may be sold under the name of Chandelier plant or its former botanical name of Kalanchoe.

References: 1,3,19, 20

YERBA DE HICOTEA (NSW-10)

Hygrophila costata

Acanthaceae

Native to Central and South America

Noxious Weed, Naturalised

Hygrophila is a genus of 100 species of perennial herbs inhabiting wet places. Leaves are opposite, lance shaped or rounded varying when submerged.

Yerba de Hicotea is a significant water weed often displacing most other species in shallow water and damp soil nearby. It spreads by rooting at the leaf junctions and by seed. It may interfere with water-based recreation and has naturalised around Lake McDonald Dam near Cooroy, along the edge of the Caboolture River south of Caboolture and at a few locations in suburban Brisbane (Hosking, pers. comm. 2004).

In NSW it has naturalised in coastal creeks and rivers in the north east of the state and in a wetland near Casino. It has also been recorded from Port Stephens and around Sydney.

References: 1,3

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QUEENSLAND

COREOPSIS (Qld-1)

Coreopsis lanceolata

Asteraceae

Native to central and south-east United States of America

Weed, Naturalised, Native Weed, Garden Escape, Environmental Weed, Cultivation Escape

Coreopsis is a large genus of about 80 species of annual or perennial herbs. Sometimes called Tickseed in reference to the appearance of the seeds which are wind-dispersed. *Coreopsis lanceolata* is an erect annual or short-lived perennial forming a clump of dark green, deeply-lobed leaves up to 1m tall. Flowers are yellow on long leafless stalks.

It is a weed of agricultural and wasteland in South Africa. In Western Australia it is a garden escape along the roadside between Perth and Albany and it is known in the Blue Mountains in NSW. In Queensland it was first recorded as naturalised in Kingaroy in 1944 and is currently spreading as a roadside weed from Tin Can Bay to the NSW border. It is also abundant in the Stanthorpe district and has the potential to become a major ground cover weed in forested areas in coastal and sub-coastal districts of Queensland and NSW.

Three cultivars are promoted in Flora (2003).

References: 1,2,10,20,21

GLORY LILY (Qld-2)

Gloriosa superba

Liliaceae

Native to Africa

Weed, Naturalised, Garden Escape, Environmental Weed

Other common names include Climbing lily, Rhodesian flame lily, Flame lily

Glory lily is an herbaceous annual climber with subterranean, perennial tubers and red and yellow flowers. It has been cultivated as a garden ornamental for many years. It is propagated by division or seed which may remain dormant for 6-9 months.

The plant contains alkaloids similar to colchicine and has been recorded as a cause of poisoning in humans (Everist, 1981). The rootstock is believed to be more toxic than other parts of the plant. It has been harvested so heavily for the pharmaceutical trade that it is now threatened in some parts of India.

Glory lily forms dense understorey carpets in coastal dune systems competing strongly with native flora. It colonises bare soil after Bitou bush control and has been recorded with up to 70 stems per sq m. (www.agric.nsw.gov.au/weeds).

Glory lily was identified as naturalised at Caloundra in south-east Queensland in 1950. It is now a serious weed on Moreton Island and the south-east Queensland coast and along the North Coast of NSW. it is recorded in North Queensland and central Queensland.

Four cultivars are described in Flora and it is listed for sale in nurseries in Queensland, Northern Territory and Victoria.

References: 1,7,19,20,21

GUAVA (Qld-3)

Psidium guajava and *P. guineense*

Myrtaceae

P. guajava is native to tropical America
P. guineense is native to Brazil

Weed, Sleeper Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Psidium is a genus of about 100 species of evergreen shrubs and trees with opposite light to mid-green oval leaves with prominent veins. The large white flowers usually open in the early morning and appear adapted for both wind and insect pollination. The seeds of the fleshy fruits are dispersed by birds, mammals, domestic livestock and humans.

P. guajava is a weed in Fiji, Hawaii, Mexico and West Polynesia. It is listed as the third most prominent invasive alien species along roadsides and water crossings in South Africa.

Guava was first recorded as naturalised in Mackay, Central Queensland in 1887. It is now widely naturalised in coastal areas of North and Central Queensland and is also common in South-east Queensland. It is host to the papaya fruit fly in northern Queensland. It is also in the Northern Territory and Western Australia

Guava fruit are used commercially for jams and juices so the plants are commercially available.

References: 1,2,21

JAPANESE HONEYSUCKLE (Qld-4)

Lonicera japonica

Caprifoliaceae

Native to east Asia

Weed, Quarantine Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Also known as Chinese honeysuckle.

Japanese honeysuckle is a woody, twining, evergreen climber growing to 10m tall where it can scramble over other plants and buildings. Leaves are light green about 30 to 70mm long. Branches are hairy when young and will root wherever they touch the ground. Yellow-white flowers are borne in pairs near branch tips. They are sweetly scented as the common name suggests and are often grown for this feature. Seeds are a shiny black berry about 2mm diameter which is poisonous to humans but eaten by birds who spread them widely.

Young Japanese honeysuckle plants take some time to become established as they develop a strong taproot before the shoots. Once established and entwined in other plants it is very difficult to remove.

Japanese honeysuckle is naturalised in all states and the ACT. It was first recorded as naturalised in South-east Queensland in 1910 and is now becoming a weed of the Darling Downs particularly in the Stanthorpe district, Moreton and Wide Bay districts.

It was ranked 49 out of 200 highly invasive naturalised environmental weed species in South-east Queensland.

It is sold at markets as it is easy to propagate.

References: 1,2,14,15,18,21

MICKEY MOUSE PLANT (Qld-5)

Ochna serrulata

Ochnaceae

Native to South Africa

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed

Mickey mouse plant is a shrub up to 2.5m tall with glossy, dark green leaves, paler below and with toothed margins. The yellow flowers, borne in spring and early summer, are fragrant and develop into round black fruit which are dispersed by birds.

It was recorded in Brisbane Botanical Gardens in 1921 and first collected as naturalised in the Moreton district in 1975. It is now becoming a major weed of Moreton Bay Islands and is also reported in North Queensland, Central Queensland and North-east NSW.

It has been ranked number 22 out of 200 invasive naturalised species in South-east Queensland.

References: 1,2,18,20,21

MURRAYA (Qld-6)

Murraya paniculata

Rutaceae

Native to China and India and south to Australia

Weed, Naturalised, Environmental Weed, Cultivation Escape

Murraya paniculata cv. exotica is the introduced form of the species which also occurs as a native in Australia. It has dark green leaves and white perfumed flowers which make it popular as a "green" fencing and screening plant. The small fruit are dispersed by birds.

It was first recorded as naturalised in Sandgate, southern Queensland, in 1963. It is invasive and naturalising in South-east and Central Queensland and has the potential to become a serious weed in North Queensland.

Murraya is widely available in nurseries.

References: 1,20,21

PARROT'S FEATHER (Qld-7)

Myriophyllum aquaticum

Haloragaceae

Native to South America

Weed, Quarantine Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Perennial, aquatic or semi-aquatic herb with stems up to 5mm thick. The pale to bright green leaves are deeply divided and clustered around the stem. Flowers are inconspicuous and do not develop into viable seeds. Spread of the plant is from broken pieces which readily form roots.

Parrot's feather was first recorded as naturalised in southern Queensland on the Gold Coast in 1960. It is now found in many streams in southern Queensland and dams on the Darling Downs and Cook pastoral district. It is spread by water but also deliberately and accidentally by humans but is still available for sale.

References: 1,21

PINK PERIWINKLE (Qld-8)

Catharanthus roseus

Apocynaceae

Native to Madagascar

Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Pink periwinkle is closely related to Blue periwinkle, a major weed in temperate areas. Pink periwinkle is an upright herbaceous perennial. The dark green, lance-shaped leaves have a paler mid rib. The pale pink flowers are borne profusely. There are several horticultural forms selected for their flower colour.

Seeds are dispersed by ants, wind and water. It was first recorded as naturalised in South-east Queensland in 1909 and is widely spread from North Queensland south to the NSW border. It is abundant on Magnetic Island.

It has been ranked no. 62 out of 200 invasive naturalised environmental weed species in south-east Queensland. It is readily available in nurseries.

References: 1,18,21

TARO (Qld-9)

Colocasia esculenta

Araceae

Native to India

Weed, Quarantine Weed, Naturalised, Introduced, Environmental Weed, Cultivation Escape

Taro is a perennial aquatic herb with tuberous roots and large arrow- or heart-shaped leaves 150 x 350mm on sturdy stalks.

Taro is dispersed by water and humans and although first recorded as naturalised only in 1996 it is now spread along many creeks and rivers.
It has the potential to become a major weed along Queensland tropical and subtropical coast and northern NSW.

Taro is grown widely as a food plant and there are several cultivars. It is readily available.

References: 1,21

YELLOW ALLAMANDA (Qld-10)

Allamanda cathartica

Apocynaceae

Native to north-eastern South America

Weed, Sleeper Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Also known as Yellow trumpet vine, Golden allamanda, Golden cup

Yellow Allamanda is scrambling shrub or vigorous evergreen climber up to 16m high. It has glossy-green leathery leaves. Large yellow, trumpet-shaped flowers up to 120mm are prominent in summer and autumn. The rounded fruit is covered in spines about 10mm long.

Yellow allamanda was listed in Victorian nursery catalogues as early as 1855. It was first recorded as naturalised in North Queensland in 1945 but had been grown in Brisbane Botanical Gardens in 1933. It is spread by wind and water and is now widely naturalised in rainforests from North and Central Queensland. There are several colour forms and it is widely available in nurseries.

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SOUTH AUSTRALIA

ALEPPO PINE (SA-1)

Pinus halepensis

Pinaceae

Native to countries bordering the Mediterranean

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Aleppo pine is a spreading evergreen tree up to 20m tall with silvery grey bark. The relatively short trunk forms many branches. Abundant woody cones release large numbers of windblown seeds which may spread long distances.

Aleppo pine is the tree of Gallipoli known as Lone Pine. It has been widely planted in parks and cemeteries as a shade tree in Victoria and South Australia. It was a common tree in Victorian nursery catalogues in the mid to late 19th century. It is drought-hardy and grows well on limestone soils. It has become naturalised in Queensland, Victoria and South Australia. It is also a weed in the Cape region of South Africa and on both the north and south islands of New Zealand.

References 1,2,6

DESERT ASH (SA-2)

Fraxinus angustifolia subsp. *angustifolia*

Oleaceae

Native to Western Mediterranean and Portugal

Naturalised, Environmental Weed

Formerly known botanically as *Fraxinus oxycarpa*.

Desert ash is a spreading deciduous tree growing to a height of 10-12 m. Leaves consist of seven leaflets with toothed margins. Inconspicuous flowers appear in winter when the tree is bare. Flowers are wind-pollinated. Seeds are winged which aids dispersal by wind. Desert ash will also spread from root suckers.

Desert ash has been widely used as a street and park tree in South Australia and the ACT where it has become naturalised. It is also naturalised in NSW and Victoria, invading riparian systems, lowland grassland and grassy woodland.

References: 1,9

FOUNTAIN GRASS (SA-3)

Pennisetum setaceum

Poaceae

Native to north east Africa

Weed, Quarantine Weed, Noxious Weed, Naturalised, Introduced, garden Escape, Environmental Weed, Cultivation Escape

Fountain grass is a densely-tufted perennial growing to 900mm. The flowerhead is a long feathery spike which makes it attractive for garden cultivation. It spreads by seed, transported by wind and water or carried on clothing and in dumped garden waste.

It has been listed as a weed in Hawaii, the United States and South Africa. It is banned in New Zealand. It has become naturalised in Queensland, NSW, Western Australia and South Australia, particularly on Eyre Peninsula. It is still sold as an ornamental.

References: 1,2

GAZANIA (SA-4)

Gazania linearis

Asteraceae

Weed, Naturalised, Garden Escape, Environmental Weed

The species is native to South Africa. Many hybrids have been developed in cultivation which makes identification difficult.

Gazania is a tough, low-growing perennial herb with lance-shaped leaves and brightly coloured daisy-like flowers in bronze, yellow and orange tones. It produces abundant wind-blown seeds and spreads rapidly. It withstands salt-laden winds and grows well in sandy soils. It is often spread in garden waste.

Gazania is widespread and common in Victoria and naturalised in South Australia and Western Australia.

The related Coastal gazania, *Gazania rigens*, has become naturalised on coastal dunes and along roadsides from southern Sydney to the central coast, on the Eyre Peninsula and southern Mt Lofty region of South Australia and in the Moreton region of South-east Queensland

References 1,3,14

GOLDEN WREATH WATTLE (SA-5)

Acacia saligna

Fabaceae

Native to the south west corner of Western Australia, mainly in coastal areas.

Weed, Noxious Weed, Naturalised, Native Weed, Introduced, garden Escape, Environmental Weed, Cultivation Escape

Golden wreath wattle is also known as Blue leaved wattle and Orange wattle.

Golden wreath wattle is a medium-sized shrub up to 10m tall and 6m wide. The pendulous branches are often blue-grey in colour when young. Bright golden flowers borne profusely in spring develop into smooth brown pods.

It is fast-growing and widely used in parks and for erosion control. It was the main source of tanbark in the south west of Western Australia. It regenerates well from seed spreading rapidly.

It is a major weed in South Africa where it has been used to stabilise sand dunes. It has become a weed in eastern NSW and has been planted as a 'native' in South Australia where it is invading bushland. Locally native wattles should be planted instead of Golden wreath wattle.

References 1, 4

KIKUYU GRASS (SA-6)

Pennisetum clandestinum

Poaceae

Native to tropical east Africa

Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Kikuyu is a perennial ground-hugging grass which spreads by runners. It is cultivated for pastures, lawns and playing fields and is a common weed of gardens and roadsides.

It is recognised as a weed in Queensland, NSW, Victoria, South Australia and Western Australia. It is not known to produce viable seeds in South Australia but persists and spreads from deliberate plantings and sites where garden waste is dumped.

It was used for erosion control on Montague Island off the south coast of NSW but became so dense that it impeded nesting and access to burrows of the Little penguin (*Eudyptula minor*). The NSW National Parks and Wildlife Service has initiated a major control program.

References 1

OLIVE (SA-7)

Olea europaea

Oleaceae

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Olive is believed to be native to the Mediterranean but because it has been grown there for thousands of years it is impossible to determine precisely where it originated. It was introduced to Australia initially in 1805 and there have been many importations since. It was listed in many Victorian nursery catalogues from the mid 1850s.

Olive is now naturalised in South Australia, NSW, Victoria and Western Australia. It is a proclaimed plant in South Australia when not planted and maintained for domestic or commercial use.

Olive is a long-lived evergreen tree 5-10 m tall with a dense rounded crown. Small white flowers are followed by fleshy fruits containing a single hard seed. Dispersal of seeds is by birds and many seedlings appear near old established trees where grazing is limited or absent.

In the Adelaide Hills it has altered the composition of the native vegetation, increased fire hazard and reduced the recreational value of parklands.

References 1,6,8

PERIWINKLE (SA-8)

Vinca major

Apocynaceae

Native to western parts of the Mediterranean

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Other common names include Big leaf periwinkle, Greater periwinkle, Blue buttons and Blue periwinkle.

Periwinkle is a mounding plant with dark green, opposite leaves on arching stems. Flowers are brilliant purple in colour. Used in horticulture as a hardy ground cover but it often spreads and is dumped with other garden waste.

Periwinkle was a common plant in Victorian nursery catalogues in the mid to late 19th century and is still popular and often sold at markets and garden fetes because it is so easy to propagate.

Periwinkle is a major weed in moist gullies in South Australia which adversely affects native vegetation by smothering it. It is also naturalised in NSW, Victoria and Tasmania.

The related Lesser periwinkle (*Vinca minor*), is native to northern Europe, the Caucasus and southern Russia. It has smaller leaves and is less vigorous than Periwinkle but is also a problem in southern Australia in some places.

References: 1

TOPPED LAVENDER (SA-9)

Lavandula stoechas

Lamiaceae

Native to the Mediterranean

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Casual Alien

Topped lavender is also known as Bush lavender, French lavender, Italian Lavender and Spanish lavender

Topped lavender is a small upright shrub to 1m high. The opposite leaves are downy, grayish-green and fragrant. Flowers are deep purple and fragrant in cylindrical heads topped with a few distinctive violet bracts. Abundant seeds are produced in late spring and early summer.

Topped lavender has been in cultivation in Australia since 1857 and was recorded in the Adelaide Botanic Gardens in 1858. It appears in Victorian nursery catalogues in the 1870s. It is naturalised in Victoria and South Australia and on the Mt Stromlo Observatory site in Canberra before the 2003 bushfires. It has been declared a noxious weed in parts of Victoria.

Seed is spread by wind and water. As a weed it forms dense patches eliminating other species. It is not eaten by domestic stock and provides harbour for rabbits.

References 1,6,8

WEEPING WILLOW (SA-10)

Salix babylonica

Salicaceae

Native to China

Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Weeping willow is a medium-sized, wide-spreading deciduous tree distinguished by its soft green foliage and long weeping branches. It was commonly listed in Victorian nursery catalogues from 1855 and widely planted along streams and riverbanks.

It is easily propagated from hardwood cuttings and may spread along river systems from broken pieces which become lodged in stream side banks. It is a useful drought fodder that responds well to hard pruning.

The leaf fall into streams changes the nutrient status while overhanging branches reduce water temperatures, thereby adversely affecting some native stream fauna.

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TASMANIA

ASPARAGUS FERN (Tas-1)

Asparagus scandens

Asparagaceae

Native to South Africa

Weed, Quarantine Weed, Naturalised, Garden Escape, Environmental Weed

A perennial climber or scrambler with stems up to 250 cm tall. Small leaves are usually in threes and stems are many-branched. There are separate male and female plants. The females produce bright orange berries which may remain on the plant from one season to the next. Tuberous roots form a dense underground mat. It is similar to Bridal creeper , *Asparagus asparagoides*, a major weed in all states, and to Asparagus fern, *Asparagus densiflorus*, which has been declared a noxious weed on Lord Howe Island.

All forms of Asparagus fern form dense tangles which smother other plants.

Seed is spread by birds, and the long-lived tubers are spread in garden waste.

References: 1,2,14

BLUE PSORALEA (Tas-2)

Psoralea pinnata

Fabaceae

Native to South Africa

Weed, Naturalised, Garden Escape, Environmental Weed

Blue psoralea is an evergreen shrub growing to about 5m tall. It has soft green pine-like leaves 30-50mm long. Flowers are purple with white wings and pea-like, often in dense clusters. These are followed by small pods each with a single dark brown seed.

The purple flowers and fast growth make it popular in home gardens. However hardiness and prolific seed production aid in its naturalisation and invasion of most vegetation types. Mass germination occurs after fire. It has many of the invasive characteristics of broom.

It is recorded as a weed in all states and commonly available in nurseries.

References: 1,2,14

BROOM (Tas-3)

Cytisus scoparius

Fabaceae

Native to Europe and Asia

Weed, Quarantine Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Other common names include English broom, Spanish broom, Andreanus broom

Scotch broom is a shrub or small tree growing to 3m tall. The small leaves are shed during summer. Flowers are pea-shaped, yellow in colour and borne prolifically. Fruits are flattened pods which split on hot days and expel the seeds which germinate freely.

Broom is a popular, hardy garden plant with many different colour forms arising from hybridisation between different species.

Broom is a naturalised weed in New Zealand, Hawaii, Iran, India, South Africa and the United States of America.

In Australia it is naturalised in NSW, Victoria, South Australia and Tasmania where it competes with native shrubs and other understorey vegetation. It is highly flammable and can change the fire regime of an area.

Broom is believed to have been introduced as an ornamental early in the 19th century and was listed in several Victorian nursery catalogues in the 1860s.

It is regarded as weedy under appropriate legislation in ACT, NSW, Victoria, South Australia and Tasmania.

References: 1,2,8

CAPE LEEUWIN WATTLE (Tas-4)

Paraserianthes lophantha subsp. *lophantha*
formerly *Albizia lophantha*

Fabaceae

Native to Western Australia

Weed, Noxious Weed, Naturalised, Native Weed, Introduced, Garden Escape, Environmental Weed

Cape Leeuwin wattle also has the common names of Stinkbean, Brush wattle, Cape wattle and Plume albizia

Cape Leeuwin wattle forms a dense evergreen shrub or small tree to 8m in height. It has lacy leaves and yellow flowers followed by pea-like seed pods.

It is recorded as weedy in South Africa, Canary Islands and Chile. It is naturalised in SA, Victoria and NSW in most types of native vegetation. The seeds lie dormant for many years but germinate rapidly after fire.

Baron Ferdinand von Mueller gave packets of seed to early explorers suggesting they plant some at each campsite so that later the bright green foliage would provide a marker of the route travelled.

Cape Leeuwin wattle is widely available from nurseries. There are many local wattles which can be used as substitutes.

References: 1,14

HIMALAYAN HONEYSUCKLE (Tas-5)

Leycesteria formosa

Caprifoliaceae

Native to the Himalayas, western China, Nepal, Myanmar

Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Himalayan honeysuckle is a large deciduous or semi-evergreen shrub growing to 2.5m in height. It has opposite pointed leaves heart-shaped at the base. The leaves are markedly paler on the undersurface than above.

White flowers with purplish red bracts in pendant clusters followed by dark crimson round berries are an attractive feature for gardeners. Himalayan honeysuckle was listed in Victorian nursery catalogues in the 1850s and widely planted. It is readily available in nurseries.

Himalayan honeysuckle is weedy in Britain and the USA and banned from sale in New Zealand. It is naturalised in Victoria and in Tasmania, where it occurs on the slopes of Mt Wellington. It is dispersed by birds and foxes and in garden waste. It has a suckering habit which aids in developing large clumps in the bush.

References: 1,2,14

HOLLY (Tas-6)

Ilex aquifolium

Aquifoliaceae

Native to south and west Europe, west Asia and North Africa.

Weed, Noxious Weed, Quarantine Weed, Naturalised, Garden Escape, Environmental Weed

Holly is an upright evergreen shrub or small tree growing to 15m tall. It has dark green, prickly leaves and small off-white flowers borne in the axils of the leaves. In most cases male and female flowers are borne on different trees. Female flowers develop into rounded glistening dark red berries which in the northern hemisphere appear in October November and are traditionally associated with Christmas. In Australia they appear in autumn.

The berries are eaten by birds which disperse the seeds into bushland. Damage to roots may stimulate suckering and lower branches may root where they touch the ground, forming dense clumps.

Holly is naturalised in NSW, Victoria, Tasmania and South Australia, usually in wet forest where it is a serious threat to native species. It is still sold from many nurseries.

References: 1,2,14

LOOKING GLASS BUSH (Tas-7)

Coprosma repens

Rubiaceae

Native to New Zealand

Weed, Naturalised, Garden Escape, Environmental Weed

Also know as Mirror bush, Creeping mirror plant, New Zealand mirror bush

Looking glass bush is a shrub to small tree up to 8m tall. Branches spreading prostrate sometimes self-layering. Leaves are broadly oblong 80 x 50 mm, glossy green above and pale beneath. Flowers are white and arranged in terminal clusters. The fruit is orange and dispersed by birds.

Looking glass bush smothers other plants. It has become naturalised in South Australia, New South Wales, Victoria and Tasmania. In Tasmania it is a weed of the Furneaux Island group. It grows on coastal headlands and heathland and tolerates drought, fire and most soil types. It is resistant to salt spray and often grown in coastal gardens because of its hardiness. There are several cultivars.

References: 1,2,14

RADIATA PINE (Tas-8)

Pinus radiata

Pinaceae

Native to small areas in coastal California

Naturalised, Environmental Weed

Also known as Monterey pine and Insignis pine after an a earlier botanical name

Radiata pine is a tall evergreen conifer growing up to 50m tall in high quality plantation areas. The form of the tree in closely-spaced plantations is narrow while open-grown trees become spreading. Radiata pine bears separate male and female flowers on the same tree with the female flowers developing into woody cones with large numbers of winged seeds. Viable seeds may remain in the cones for several years and are often shed abundantly after fire which kills the parent tree.

In the rush to reduce dependence on imports of softwood timber many thousands of hectares of unalienated native bushland were cleared and planted with Radiata pine. The extent of the plantation was often determined by adjacent land ownership and steepness of terrain. This meant that plantations often have a common border with conservation reserves and other native bushland. By 2003 there were over 716,500 ha of Radiata pine in Australia.

Pines have winged seeds which has aided their dispersal into bushland where they compete with native species. In practical terms it may never be possible to eliminate this dispersal while the seed source remains. Genetic modification to produce sterile pines which put more energy into wood production than reproduction appears to be the only solution to invading pines; however this scientific achievement is a long way off.

Reference: 1

SWEET PITTOSPORUM (Tas-9)

Pittosporum undulatum

Pittosporaceae

Native to NSW

Weed, Noxious Weed, Naturalised Garden Weed, Garden Escape, Environmental Weed, Cultivation Escape

Sweet pittosporum has many common names including Victorian box, Mock orange, Australian cheesewood, New Zealand daphne, Victorian laurel and Wild coffee

Sweet pittosporum is a tall shrub or small tree growing to a height of 12m and spread of 6m. It is native to wet forests in coastal areas between the Great Dividing Range and the sea from southeastern Victoria to southern Queensland. It has shiny, dark green oval leaves with wavy edges which give it its specific name. Creamy white, sweetly-scented flowers are followed by clusters of orange fleshy fruit about 13mm long. The fruits are attractive to birds.

Sweet pittosporum is now a serious weed problem outside its natural range in Victoria, South Australia, Tasmania and Western Australia. It is present on King, Lord Howe and Norfolk islands and many countries overseas, including Jamaica, the Azores and South Africa. It is already a serious weed in the Sydney area and NSW mid-north coast.

Spread of Sweet pittosporum has been encouraged by horticultural advocates extolling its hardiness and sweet perfume and by a range of fruit-eating native and exotic birds.

Sweet pittosporum has impacts on natural environments through shading, competition and changes in soil nutrients. By invading native bushland it has removed fire-adapted species and changed fuel loads even though it is fire- sensitive.

References 1,4,5

TREE HEATH (Tas-10)

Erica arborea

Ericaceae

Native to Mediterranean, east Africa, Middle East, Canary and Madeira islands

Weed, Naturalised, Garden Escape, Environmental Weed

Tree heath is a shrub or small tree up to 7m tall with dark green leaves grooved beneath. It produces masses of small white, scented flowers followed by small fruits which shed seeds over short distances. It has a well developed rootstock which reshoots after fire.

Tree Heath is recorded as a weed in New Zealand and Corsica. There are naturalised populations in South Australia, and in Victoria it is a threat to riverside vegetation. It is widespread in Tasmania.

Tree heath was listed in many Victorian nursery catalogues between the 1850s and 1880s. There are many other species of Erica which are popular garden plants with weedy potential.

References: 1,2,6

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VICTORIA

AFRICAN LOVEGRASS (Vic-1)

Eragrostis curvula

Poaceae

Native to South Africa

Weed, Sleeper Weed, Quarantine Weed, Noxious Weed, Naturalised, Introduced, Cultivation Escape, Environmental Weed

African lovegrass is a densely tufted perennial up to 120 cm tall with curly leaf tips and grey-green flowers. There are many different variants of this species which leads to confusion regarding correct identification. It was introduced to Australia as a potential pasture species but most varieties are unpalatable to stock.

It has naturalised in all Australian states and the ACT. It is a significant environmental weed in Western Australia where it is common along roadsides in the south-west. In Victoria, African lovegrass is common from east Gippsland to the Mallee where it has invaded heathlands, woodlands and grasslands and has been classified as a Prohibited Weed in five regions. It reproduces by seed and is often mistaken for an Australian native plant.

References: 1,2,8,14

ASPARAGUS FERN (Vic-2)

Asparagus scandens

Asparagaceae

Native to South Africa

Weed, Quarantine Weed, Naturalised, Garden Escape, Environmental Weed

A perennial climber or scrambler with stems up to 2500mm tall. Small leaves are usually in threes and stems are many branched. There are separate male and female plants. The females produce bright orange berries which may remain on the plant from one season to the next. Tuberous roots form a dense underground mat. It is similar to Bridal creeper , *Asparagus asparagoides*, a major weed in all states and to Asparagus fern, *Asparagus densiflorus*, which has been declared a noxious weed on Lord Howe Island.

All forms of Asparagus fern form dense tangles which smother other plants.

Seed is spread by birds, and the long-lived tubers are spread in garden waste.

References: 1,2,14

BLUE PERIWINKLE (Vic-3)

Vinca major

Apocynaceae

Native to western parts of the Mediterranean

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Also known as Bigleaf periwinkle, Greater periwinkle, Blue buttons, Vinca, Sorcerer's violet

Periwinkle is a perennial evergreen creeper which grows up to 500mm tall. It has dark green opposite leaves on arching stems and can form large, dense mats often covering many square metres. Flowers, borne singly, are bright blue/mauve in colour. Used in horticulture as a hardy ground cover but it often spreads and is dumped with other garden waste.

Periwinkle was a common plant in Victorian nursery catalogues in the mid- to late 19th century and is still popular and often sold at markets and garden fetes because it is so easy to propagate.

A serious weed along the Snowy River and in East Gippsland, Victoria. It is a major weed in moist gullies in South Australia and is naturalised in NSW and Tasmania.

It is related to weedy Madagascar periwinkle, *Catharanthus roseus*, which has been nominated as one of the worst ten weeds in cultivation in Queensland.

The related Lesser periwinkle, *Vinca minor*, is native to northern Europe, the Caucasus and southern Russia. It has smaller leaves and is less vigorous than Periwinkle but is also a problem in some places.

References: 1,14

GAZANIA (Vic-4)

Gazania spp.

Asteraceae

Gazania is native to South Africa. Many hybrids have been developed in cultivation.

Weed, Naturalised, Environmental Weed

Gazania is a tough low-growing perennial herb with lance shaped leaves and brightly coloured daisy-like flowers in bronze, yellow and orange tones. It produces abundant wind blown seeds and spreads rapidly. It withstands salt-laden winds and grows well in sandy soils.

Gazania linearis and *G. rigens* and hybrids between them are commonly available in nurseries. The two parent species are naturalised in all states and the Northern Territory.

References: 1,3,14

HORSETAILS (Vic-5)

Equisetum spp.

Equisetaceae

Native to Northern Hemisphere

Weed, Quarantine Weed, Noxious Weed, Naturalised, Garden Escape

Horsetails are on the Alert List for Environmental Weeds, a list of 28 non-native plants that threaten biodiversity.

Also known as Scouring rush, Mare's tail, Pine-grass, Joint weed and Paddock pipes.

The genus *Equisetum* is a primitive group of non-flowering perennial plants consisting of approximately 30 species, of which 12 are considered weeds. The most common one in Australia is Common horsetail, *Equisetum arvense,* which is a native of Great Britain, Europe, Asia and North America.

The plant grows to 600mm tall with jointed stems of two distinct types. Fertile pale brown ones develop in spring and die after shedding spores. Sterile green stems then emerge and persist. They usually have whorls of spreading branches from most of the upper joints. The shoots grow from long, underground stems, called rhizomes, which extend to great depths.

Horsetails invade damp ground, river banks, lake margins, gardens and pastures. They grow on many types of soil and can tolerate low nutrient levels. They are toxic to sheep, cattle, and horses. Root fragments are easily spread and quickly become established.

Horsetails are naturalised in NSW, Victoria, Tasmania, Western Australia and Queensland. They are declared as a pest plant in each of these states and in the ACT. Even so, Horsetails may still be found in some nurseries and are promoted for medicinal purposes.

References: 1,2,12b,14

OXALIS (Vic-6)

Oxalis spp.

Oxalidaceae

Cosmopolitan, but centres of diversity in South Africa and South America

Quarantine Weed, Naturalised, Garden Escape, Environmental Weed

The genus *Oxalis* includes over 800 species of annual or perennial, stemmed or stemless, herbs and shrubs, often with underground bulbs or tubers. A few are aquatic species. Of the thirty species of *Oxalis* in Australia, twenty are naturalised and many are existing or potential serious pests in various parts of the country. Twenty two species of *Oxalis* were listed in Victorian nursery catalogues between 1855 and 1889. Eleven species are described in Gardening Australia's "Flora" (2003) with acknowledgement that 'some of the world's worst weeds belong in *Oxalis,*…'

One species of concern in Victoria is Soursob, *Oxalis pes-caprae* which invades coastal heath vegetation, grassland, woodland and dry forest. It also occurs along roadsides, and in gardens, crops and pastures. It is distinguished by the three heart-shaped leaflets with or without stalks which fold in dull days or at night. Flowers are bright yellow in colour and open in sunlight and close at night. There are masses of underground bulbs which are spread by water, birds, in dumped garden waste and during cultivation.

References: 1,2,3,6,14

PEPPER TREE (Vic-7)

Schinus areira
= *Schinus molle* var. *areira*

Native to northern South America to Mexico

Weed, Naturalised, Garden Escape, Environmental Weed

Other common names Californian pepper tree, Peppercorn tree, Peruvian mastic tree

Pepper tree is a large spreading tree growing to a height of 12m. It has drooping fern-like leaves with many leaflets which are aromatic when crushed. Flowers hang in clusters with male and female flowers on separate plants. Flowers on the female trees develop into bright red berries with a hard stone. The seed is very hard and germinates best when passed through the guts of birds. A large number of seeds are stored in the soil.

Mature trees are resistant to fire and drought and are able to sprout from the rootstock if damaged.

Pepper tree is widely planted in homestead gardens and stockyards in dry areas of NSW, Victoria and South Australia. It has invaded lowland grassland and woodland and dry forest. It has been reported as spreading in riparian vegetation near Warwick in south-east Queensland and in old settlements in the Western Australian Goldfields region. It is native to South America and has been planted as a street tree in southern Europe.

Pepper tree was listed for sale in nursery catalogues in Victoria in the l870s and l880s and is still available for sale from many nurseries.

References: 1,6,14

PRICKLY PEAR (Vic-8)

Opuntia spp.

Cactaceae

Native to North and South America

Weed, Quarantine Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed

Other common names include Tiger pear, Cactus, Tongue, Tree pear, Devil's rope

The genus *Opuntia* includes over 300 species of succulents of various heights with fleshy 'leaves'. They always have prickles and usually spines and were grown as 'living fences' in the early days of European settlement. Flowers are often attractive and the fruits of some species are regarded as a delicacy.

Prickly pear is one of the most convincing examples of a garden plant gone wild and causing enormous damage. From a single potted plant in 1839, Prickly pear colonised over 25 million hectares in Queensland and NSW by 1925. At one stage it was estimated that Prickly pear was advancing at the rate of 100ha each hour.

Introduction of the moth *Cactoblastis cactorum* in 1926 was successful in controlling Prickly pear and by 1933 it was estimated that 90 per cent of *Opuntia* in Queensland had been destroyed.

Opuntia species are spread as stem fragments by water and in garden waste. Seed of the succulent fruits are spread by birds. Various species of *Opuntia* have become naturalised in Victoria, Queensland, NSW , South Australia and Western Australia.

Although prohibited from entry to Australia, many *Opuntia* species are already here and 15 species are promoted in one horticultural text published in 2004. They are easy to propagate and are often found on garden stalls at fetes and markets.

References: 1,2,3,14

SPANISH HEATH (Vic-9)

Erica lusitanica

Ericaceae

Native to south-west Europe

Weed, Noxious Weed, Quarantine Weed, Naturalised, Garden Escape, Environmental Weed

Another common name is Portuguese heath

Spanish heath is an erect evergreen woody shrub up to 200 cm tall. The leaves are crowded in rings of three or four on brittle, woody stems densely covered with simple hairs. The flowers are white to pink in pendulous clusters of three to four on the ends of the very short side branches. The fruit is a capsule about 3mm long containing many tiny dust-like seeds which are spread by wind, water and on the coats of animals. The seed remains viable in the soil for several years and it is reported that a single plant may produce nine million seeds each year. Fire appears to create suitable conditions for germination and seeding establishment.

Spanish heath is naturalised in New South Wales, South Australia, Tasmania and the ACT. In Victoria, it is widespread and has invaded lowland grassland/grassy woodland, dry and wet forest and streamside vegetation. It is available in nurseries and markets.

References: 1,2,14

WHITE TUSSOCK (Vic-10)

Nassella tenuissima
= Stipa tenuissima

Poaceae

Native to Texas, New Mexico, central Mexico

Weed, Quarantine Weed, Noxious Weed, Garden Escape, Environmental Weed, Casual Alien

Also known as Mexican feather grass, Fine-stem needle grass, Pony tails, Angel's hair

White tussock is a perennial grass to 1000mm tall with narrow rolled leaves giving the attractive appearance of flowing blonde hair. It is difficult to distinguish from Serrated tussock, *Nassella trichotoma*, when not in flower.

Seed is spread on clothing, footwear, vehicles, wind and water. It is estimated that it could establish over 70 per cent of Victoria. It is still available for sale in some nurseries and in 2004 was promoted in a leading garden magazine for 'its light and airy nature' and it is described in Gardening Australia's "Flora" (2003).

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WESTERN AUSTRALIA

ARUM LILY (WA-1)

Zantedeschia aethiopica

Araceae

Weed, Quarantine Weed, Noxious Weed, Naturalised, Native Weed, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Native to southern Africa

Arum lily is also known as a Lily, Egyptian lily, Jack in the Pulpit and White arum lily.

It was widely promoted in nursery catalogues in Victoria between the 1850s and 1880s and is still popular in the florist trade, being traditionally associated with funerals. The cultivar 'Green Goddess' is currently fashionable in home gardens.

Arum lily is a perennial herb with large dark green leaves up to 450mm long and 250mm wide. The small yellow flowers are borne within a large funnel shaped white bract recurved at the tip. All parts of the plant are toxic when eaten raw.

Arum lily spreads by seed and root fragments. It has become naturalised in the far south coast of NSW, in the south -western districts of Victoria, the moist valleys of the Adelaide Hills and in north west Tasmania.

It is a serious weed of wetter pastures in the Margaret River area of Western Australia where it has been declared noxious. It also grows among heath and on sand dunes on Garden Island. Arum lily competes with pasture for nutrients and space and may completely replace pasture species in grazing areas. It is also toxic to stock, especially cattle.

References 1,8,10

BLACK FLAG (WA-2)

Ferraria crispa

Iridaceae

Native to South Africa

Weed, Naturalised, Garden Escape, Environmental Weed

Black flag is a small perennial herb with flowering stems up to 450mm tall. It has been in cultivation for over 300 years and is grown for its brown to yellow mottled flowers with waved edges to the petals. It is propagated from seed or divisions.

Flag lily occurs in coastal heath, Tuart, Agonis and Banksia woodland from Perth to Cape Riche. It is often found growing in clumps and readily recognised by its succulent foliage even when not in flower.

References 1,3,11

BROAD LEAF PEPPER TREE (WA-3)

Schinus terebinthifolius

Anacardiaceae

Native to Brazil, Argentina and Paraguay

Weed, Sleeper Weed, Quarantine Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape, Casual Alien

Broad leaf pepper tree has been in cultivation in Australia for almost 150 years and is recorded in nursery catalogues in Victoria in the mid 1860s.

It is a small tree 4.5m wide and 6 m tall with leathery fern-like leaves. There are separate male and female trees. Small white flowers on the female trees are followed by bright red fruits which are dispersed by birds.

It is reported as a weed in Florida, the Bahamas and Hawaii and is naturalised in south-east Queensland, north-east NSW and parts of Western Australia. It is found on damp sites near Geraldton and on river banks and swampy sites near Perth. It can rapidly colonise disturbed bushland in low-lying areas and may suppress re -establishment of native species. It re-sprouts from cut stumps and produces suckers from damaged roots.

The closely related Pepper tree, *Schinus molle* var. *areira*, has been nominated as one of the top ten invasive naturalised garden plant species available for sale in arid Northern Territory and in Victoria. It is a larger tree than Broad leaf pepper tree and has fine leaflets. It is widely planted in homestead gardens and stockyards in dry areas of NSW, Victoria and South Australia. It has been reported as spreading in riparian vegetation near Warwick in south-east Queensland and in old settlements in the Western Australian Goldfields region. It is native to South America and has been planted as a street tree in southern Europe.

References 1,2,6,10,11

COASTAL TEA TREE (WA-4)

Leptospermum laevigatum

Myrtaceae

Native to coastal areas of NSW, Victoria, Tasmania and South Australia.

Weed, Noxious Weed, Naturalised, Native Weed, Garden Escape, Environmental Weed, Cultivation Escape

Also know as Australian myrtle and Victorian tea tree

Coastal tea tree is a tall shrub or small tree to 5m. It is tolerant of salt spray and has been used as a windbreak or hedging plant and for soil erosion control.

It is widely naturalised outside its natural range in north-east NSW and South-east Queensland where it competes effectively with native vegetation. In Western Australia it was introduced after sand

mining and has now become naturalised. It has spread rapidly along road verges between Jurien Bay and Albany invading coastal heath and woodlands on sandy and lateritic soils. It has abundant white flowers 15-20 mm across which develop into woody capsules which subsequently open to shed large numbers of seeds.

It is a weed in South Africa.

Pink tea tree, *Leptospermum erubescens*, is recommended as a substitute for Coastal tea tree.

References 1, 4,10,11

FREESIA (WA-5)

Freesia alba x leichtlinii

Iridaceae

This is a hybrid raised in Italy from parents which originated in winter rainfall regions of South Africa.

Naturalised, Garden Escape, Environmental Weed

Freesias are small perennial herbs with leaves arranged in a fan-like iris. They range in height from 100 to 300mm. The flowers may be single or double and scarcely to sweetly scented.

Although species of *Freesia* were cultivated in Europe in the mid 18th century, selective hybridisation did not start until the late 19th century. They are now grown in large numbers for the florist trade.

They are propagated from seed or bulb-like corms and may be grown in the garden or indoors in pots. After potted plants flower and die back they may sometimes be dumped with other garden refuse which aids their spread.

Freesia is a serious weed of coastal heath, Wandoo and Tuart woodland, granite rocks, from Gingin to Israelite Bay.

References 1,3,10,11

SPOTTED GUM (WA-6)

Eucalyptus maculata
= Corymbia maculata

Myrtaceae

Weed, Naturalised, Native Weed, Introduced, Garden Escape, Environmental Weed

Spotted gum occurs naturally in coastal areas of NSW and Qld extending inland for about 400km west of Maryborough. There is a small stand north west of Orbost in eastern Victoria. It is a tall straight tree up to 35-45 m tall and is a valuable timber species. In NSW it is a valuable source of winter nectar for commercial apiarists.

It has been planted in southern Western Australia where it has become naturalised in Banksia and Tuart woodlands from Perth to Busselton. In Kings Park, Perth, Spotted gum has become a serious weed invading Banksia woodland and killing the understorey. Spotted gum is spread by seed.

An alternative species for cultivation in southern Western Australia is Tuart, *Eucalyptus gomphocephela*.

References 1,10,11

SWEET PITTOSPORUM (WA-7)

Pittosporum undulatum

Pittosporaceae

Native to NSW

Weed, Noxious Weed, Naturalised Garden Weed, Garden Escape, Environmental Weed, Cultivation Escape

Sweet pittosporum has many common names including Victorian box, Mock orange, Australian cheesewood, New Zealand daphne, Victorian laurel and Wild coffee

Sweet pittosporum is a tall shrub or small tree growing to a height of 12m and spread of 6m. It is native to wet forests in coastal areas between the Great Dividing Range and the sea from southeastern Victoria to southern Queensland. It has shiny dark green oval leaves with wavy edges which give it its specific name. Creamy white sweetly-scented flowers are followed by clusters of orange fleshy fruit about 13mm long. The fruits are attractive to birds.

Sweet pittosporum is now a serious weed problem outside its natural range in Victoria, South Australia, Tasmania and Western Australia. It is present on King, Lord Howe and Norfolk islands and many countries overseas including Jamaica, the Azores and South Africa. It is already a serious weed in the Sydney area and NSW mid-north coast.

Spread of Sweet pittosporum has been encouraged by horticultural advocates extolling its hardiness and sweet perfume and by a range of fruit eating native and exotic birds.

Sweet pittosporum has impacts on natural environments through shading, competition and changes in soil nutrients. By invading native bushland it has removed fire-adapted species and changed fuel loads, even though it is fire- sensitive.

References 1,4,5,

SYDNEY GOLDEN WATTLE (WA-8)

Acacia longifolia

Fabaceae

Weed, Noxious Weed, Naturalised, Native Weed, Introduced, Environmental Weed, Garden Escape, Cultivation Escape

Sydney golden wattle, which is also known as Sallow, wattle, Long leaved wattle and Golden rods, is a tall, dense shrub or small spreading tree native to NSW, Vic., Tas. and SA. It is fast growing and adaptable to a wide range of situations but requires good drainage.

The sweet scented flowers attract a range of insects which attract birds who feed on them.

Two distinct forms have been introduced to Western Australia. Subspecies *longifolia* which has bright green linear 'leaves' and straight pods and subspecies *sophorae* which has thicker, shorter and sometimes fleshy 'leaves' and coiled or contorted pods. Propagation is by seed which may lie dormant in the soil for many years. Subspecies *sophorae* has been recommended as an excellent screen plant, for beach plantings and for stabilising dunes.

Acacia longifolia has become a weed in South Africa.

Sydney golden wattle is a garden escape which grows on roadsides, creeklines, swamps and bushland from Perth to Manypeaks, northeast of Albany.

Local Western Australian species of *Acacia* are recommended as alternatives to Sydney Golden Wattle.

References 1,4,10,11

WATSONIA (WA-9)

Watsonia spp.

Iridaceae

Naturalised, Environmental Weed, Garden Escape,

Native to South Africa

Watsonia has been cultivated in Australia for more than 150 years being included in nursery catalogues in Victoria in the 1850s. Six species of Watsonia have been recorded as naturalised in conservation reserves and state forests in Western Australia including Kings Park. They are all believed to be garden escapes. Because they are of garden origin it is often difficult to determine the exact species.

Watsonia aletroides was first recorded as naturalised in Western Australia in 1981and in Victoria in 1989. *Watsonia bulbillifera* is a serious weed in the wetter south coast and south-west of Western Australia where it colonises roadsides. *Watsonia marginata,* which has open pale lilac flowers, occurs around old settlements from the Darling Range to Albany.

Watsonia is a sun-loving herbaceous perennial which holds its flowers above the foliage. It was introduced as an ornamental and propagated for its hardiness and bright flowers. Up to three corms are produced alongside the main corm each year and cormlets are produced in the axils of the leaves. The corms can remain dormant for many years when dry and can be shipped easily by post. Watsonia may also be raised from seed.

References 1,6,7,10,11,13

WEEPING WHITE BROOM (WA-10)

Retama raetum

Fabaceae

Native to northern Africa and western Sahara, Sicily and the Middle East.

Weed, Naturalised, Introduced, Garden Escape, Environmental Weed.
Weeping white broom is on the Alert List for Environmental Weeds, which contains 28 species of non-native plants that threaten biodiversity and the environment.

Weeping white broom is a graceful shrub to about 3m tall with downy young foliage on long slender branches. It has small white flowers in spring followed by pea-like pods containing one or two kidney-shaped seeds. A single plant may produces thousands of seeds.

It has been used for sand stabilisation in southern Spain and Morocco and is weedy in California and Oregon in the United States of America.

White weeping broom was introduced to Australia as an ornamental and first recorded in 1841 in South Australia. It does not appear to have been promoted or may have been included with other brooms in the genus *Genista.* In Australia, Weeping white broom has become naturalised along road

verges and wasteland in Perth and in scrub and woodland on sandy soils on Eyre and Yorke Peninsulas in South Australia. It has been nominated as one of the top ten most invasive garden plants in southern Western Australia.

Seed may lie dormant in the soil for many years, germinating after fire. It is readily propagated from seed and widely available in the nursery trade where it is often sold as *Retama monophylla*, *Retama monosperma* or *Genista alba.*

An alternative to White weeping broom is the Australian native broom, *Viminaria juncea*, which has perfumed orange flowers in spring. It occurs in all states but not the Northern Territory, usually in swampy ground, so it prefers damp conditions.

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Australian Capital Territory

BLACK LOCUST (ACT-1)

Robinia pseudoacacia

Fabaceae

Native to North America

Weed, Sleeper Weed, Noxious Weed, Naturalised, Introduced garden Escape, Environmental Weed, Cultivation Escape, Alien Escape

Also known as False acacia, Locust tree, Yellow locust, Robinia

Robinia is a small genus of about twenty species of trees and large shrubs usually with spines on the branches. Leaves have many leaflets giving a fine tracery when viewed upwards. Sweetly perfumed, white pea-like flowers borne in tresses are followed by small brown pods with several seeds.

Black locust produces root suckers when the roots are disturbed and dense clumps may develop crowding out other plants. It was often planted around homesteads and stockyards and sometimes the dense thicket is the living reminder of former farming ventures.

Although native to North America it has become naturalised in Europe forming thickets in disturbed land along roadsides and railways and reducing the view of the surrounding countryside for travellers. It has transformed grassland into open woodland in parts of Germany.

The characteristics which make it weedy have been used to advantage in erosion control work in Hungary. The roots also fix nitrogen in the soil.

Black locust is naturalised in WA, SA, Victoria, NSW and Queensland. It was sometimes planted in Canberra last century as a street tree and is a scattered weed in the ACT. It is still available in nurseries although 'mop top' cultivars are now more popular for small gardens. It is still used as the rootstock however and the problem of suckering has been reduced but not solved.

References: 1,3,14,15

BROOM (ACT-2)

Cytisus spp.

Fabaceae

Native to Europe and Asia

Weed, Quarantine Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Both *Cytisus* and *Genista* have the same common name and are similar in appearance. The genus *Cytisus* contains 33 species of evergreen or deciduous shrubs or small trees without thorns. Scotch broom and its different forms are the most commonly planted species. It is a shrub or small tree growing to 3m tall. The small leaves are shed during summer. Flowers are pea-shaped, of various colours and borne prolifically. Fruits are flattened pods which split on hot days and expel the seeds which germinate freely.

Scotch broom is a naturalised weed in New Zealand, Hawaii, Iran, India, South Africa and the United States of America.

In Australia it is one of 49 naturalised non-native species which are having a direct impact on rare and threatened species. It is naturalised in the ACT, NSW, Victoria, South Australia and Tasmania where it competes with native shrubs and other understorey vegetation. It is highly flammable and can change the fire regime of an area.

Scotch broom is believed to have been introduced as an ornamental early in the 19th century and was listed in several Victorian nursery catalogues in the 1860s.

It is regarded as weedy under appropriate legislation in NSW, Victoria, South Australia and Tasmania. All species of *Cytisus* are declared in the ACT which means a control plan must be developed.

References: 1,2,3,8,16

BROOM (ACT-3)

Genista spp.

Fabaceae

Native to Europe, Mediterranean to Western Asia

Weed, Naturalised, Environmental Weed

Both genera *Cytisus* and *Genista* are similar in appearance and have the same common name. *Genista* contains 90 species of shrubs or small trees often deciduous or appearing evergreen due to green flattened branches. They are sometimes spiny. Pea-like yellow flowers are carried in dense heads. Seeds which are poisonous are borne in pods. The seeds may live for years in the soil germinating densely after fire.

One of the most common species is Montpellier broom, *Genista monspessulana*, an evergreen shrub to about 3000m high. Each pod contains about six black seeds which are shed explosively over one or two metres from the parent plant. Montpellier broom has an extensive root system which enables it to withstand drought.

Montpellier broom is believed to have been introduced to Australia in the 19th century and has since become naturalised in NSW, Victoria, south west Western Australia, South Australia and Tasmania and the ACT where it occurs along roadsides and in the hills behind Canberra.

Brooms are still sold in nurseries and markets.

References: 1,2,3,14,15

COTONEASTER (ACT-4)

Cotoneaster spp.

Rosaceae

Native to Europe, North Africa, East Asia, Siberia and Himalaya

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed

Cotoneaster is a large genus of more than 70 species of evergreen and deciduous shrubs and small trees without spines. Leaves are alternate and simple. Flowers are small white or rarely light pink and followed by small red or black fruits each with several seeds.

Cotoneasters are popular garden plants grown for the bright fruits which attract birds and are attractive in winter in cold climates. Many species are suitable for hedges and were commonly grown in the ACT, NSW and Victoria last century when hedges were popular. Several species were listed in nursery catalogues in Victoria in the 1860s.

About seven species are recorded as naturalised and 19 species are described in Gardening Australia's 'Flora' 2003.

Spread is by birds and in dumped garden waste. Cotoneasters are sold in many nurseries, although by recent agreement major nurseries in the ACT have agreed not to sell some species. They are still brought into the ACT for sale at markets.

References: 1,3,15

FIRETHORN (ACT-5)

Pyracantha spp.

Rosaceae

Native to South east Europe and China.

Weed, Naturalised, Garden Escape, Environmental Weed

Pyracantha is a genus of about seven species of thorny evergreen shrubs resembling Cotoneaster. Leaves are simple with smooth or serrated margins. White flowers are followed by orange or red berries which have appeal in winter and are also attractive to birds. Pyracantha is very hardy and was often included as the shrub layer in windbreaks on the Southern Tablelands of NSW and in the ACT. It was also used for hedges.

Five species of *Pyracantha* have been recorded as weeds in the ACT. The most widespread is *Pyracantha angustifolia* , native to South West China, which has orange berries and forms dense thickets competing with native plants and providing cover for rabbits. It is long-lived and also naturalised in Queensland, NSW and Victoria.

A mature bush can produce one million seeds each year and by common consent nurseries in the ACT have agreed not to sell *Pyracantha angustifolia* . Nevertheless it has recently been offered for sale as bonsai which could eventually become garden refuse.

Pyracantha angustifolia is a major food source for the Pied Currawong and helps to sustain numbers of this bird through winter. Currawongs prey on small native birds and Firethorn is thus part of a food chain which has adverse effects on biodiversity.

References: 1,2,14,15

JAPANESE HONEYSUCKLE (ACT-6)

Lonicera japonica

Caprifoliaceae

Native to east Asia

Weed, Quarantine Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Also known as Chinese honeysuckle.

Japanese honeysuckle is a woody, twining evergreen climber growing up to 10m tall where it can scramble over other plants and buildings. Leaves are light green about 30 to 70mm long. Branches are hairy when young and will root wherever they touch the ground. Yellow-white flowers are borne in pairs near branch tips. They are sweetly scented as the common name suggests and are often grown for this feature. Seeds are a shiny black berry about 2mm diameter which is poisonous to humans but eaten by birds who spread them widely.

Young Japanese honeysuckle plants take some time to become established as they develop a strong taproot before the shoots. Once established and entwined in other plants it is very difficult to remove.

It is naturalised in all states and the ACT where it occurs in woodland and riverine areas near Canberra. It is sold at markets as it is easy to propagate.

References: 1,2,14,15

LOMBARDY POPLAR (ACT-7)

Populus nigra cv. 'Italica'

Salicaceae

Native to Italy

Naturalised, Environmental Weed

Lombardy poplar is an upright form of *Populus nigra* growing to 25 m in height. It has triangular-shaped dark green leaves which turn a brilliant yellow in late autumn. Poplars have separate male and female trees and the ones first introduced to the ACT were male. They do not produce seed but reproduce by suckers which can form dense copses.

Lombardy poplar has been widely planted as an ornamental tree in moist sites and beside streams in the ACT. The most significant planting of four trees is in the courtyards of the Senate and the House of Representatives in Old Parliament House. The trees were planted in 1926 but replaced with young trees of the same stock in the late 1900s when the original trees became unsafe.

Lombardy poplar is a weed in South Africa and has formed dense suckering stands in wetlands near Perth. It is one of 49 non-native naturalised species in the Australian flora having a direct impact on rare and threatened species.
It is available in nurseries.

References: 1,2,15,16

OLIVE (ACT-8)

Olea europaea

Oleaceae

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Olive is believed to be native to the Mediterranean but because it has been grown there for thousands of years it is impossible to determine precisely where it originated. It was introduced to Australia initially in 1805 and there have been many importations since. It was listed in many Victorian nursery catalogues from the mid 1850s.

Olive is a long-lived evergreen tree 5-10 m tall with a dense rounded crown. Small white flowers are followed by fleshy fruits containing a single hard seed. Dispersal of seeds is by birds and many seedlings appear near old established trees where grazing is limited or absent.

Olive is now naturalised in South Australia, NSW, Victoria and Western Australia. It is a proclaimed plant in South Australia when not planted and maintained for domestic or commercial use.

To date it is an occasional weed in Canberra however with the establishment of olive plantations it is almost certain to become a major weed in the future.

References 1,6,8

RADIATA PINE (ACT-9)

Pinus radiata

Pinaceae

Native to coastal California

Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Also known as Monterey pine and Insignis pine after an a earlier botanical name

Radiata pine is a tall evergreen conifer growing up to 50m tall in high quality plantation areas. The form of the tree in closely spaced plantations is narrow while open grown trees become spreading. Radiata pine bears separate male and female flowers on the same tree with the female flowers developing into woody cones with large numbers of winged seeds. Viable seed may remain in the cones for several years and are often shed abundantly after fire which kills the parent tree.

In the rush to reduce dependence on imports of softwood timber many thousands of hectares of unalienated native bushland were cleared and planted with Radiata pine. The extent of the plantation was often determined by adjacent land ownership and steepness of terrain . This meant that plantations often have a common border with conservation reserves and other native bushland. By 2003 there were over 716,500 ha of Radiata pine in Australia.

A target of 16,000 ha was set for the ACT and this had almost been reached when major bushfires in 2001 and 2003 destroyed over 11,000 ha. A decision has been made to replant up to 7000 ha with *Pinus radiata* together with areas of native vegetation. The problem of weediness will reappear when the plantations reach seeding age.

Pines have winged seeds which has aid their dispersal into bushland where they compete with native species. In practical terms it may never be possible to eliminate this dispersal while the seed source remains. Genetic modification to produce sterile pines which put more energy into wood production than reproduction appears to be the only solution to invading pines however this scientific achievement is a long way off.

Reference: 1

WHITE POPLAR (ACT-10)

Populus alba

Salicaceae

Native to Eurasia

Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Also known as Silver leaved poplar, and Silver poplar

White poplar is a rounded broad-leaved deciduous tree growing up to 12 m tall. It is distinguished by the blue grey leaves with white undersides and white bark. Leaves turn brilliant yellow in autumn and it is often grown for this feature. It has male and female flowers on separate trees a have been produced. After flowering in October the unfertilised female flowers become white wind borne 'fluff' which spreads widely causing respiratory irritation to some people.

White poplar may be mistaken for Silver birch.

White poplar spreads by suckers which may from dense thickets in gullies and along streams. Suckering is stimulated by soil disturbance damaging roots.

White poplar is an environmental weed in South Africa. In Western Australia it has formed dense stands in disturbed wetlands from Perth to Albany and it is considered a threat to riparian vegetation in Victoria. It has spread along the Murrumbidgee River and in wet areas in rural parts of the ACT. It is still sold in nurseries.

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NT TOP END

AFRICAN TULIP (NT TE-1)

Spathodea campanulata

Bignoniaceae

Native to tropical West Africa

Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

A tree up to 20m tall with an open crown and dense dark green foliage. When mature the trunk develops characteristic buttresses. Leaves are composed of several dark green leaflets which are pale on the underside. Tight clusters of downy buds open to reveal brilliant flame-scarlet cup-shaped blooms. The woody fruit is poisonous.

African tulip is grown widely in tropical and sub-tropical areas for its spectacular flowers.

References: 1,3,24

CANDLE BUSH (NT TE-2)

Senna alata

Fabaceae

Native to South America

Weed, Quarantine Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed

Also known as Ringworm shrub, Christmas candle, Emperor's candlesticks

Candle bush is an evergreen shrub up to 4m tall. It has short pithy stems and leaves with 8-11 pairs of large, oblong leaflets. The bright yellow flowers are followed by winged pods which can be spread by animals and humans.

As the alternative common name suggests, it is used as a treatment for ringworm.

Candle bush is a weed in many tropical countries and was introduced to Darwin as an ornamental garden plant. It is now naturalised in the Northern Territory particularly in areas with a high water table. It is also naturalised in Queensland and Western Australia. It has a tough rootstock and plants sucker when damaged. It is grown as a garden and indoor plant.

References: 1,2,8,23

CLUMPING FISHTAIL PALM (NT TE-3)

Caryotis mitis

Arecaceae

Native from India to the Philippines and the island of Java in Indonesia

Weed, Sleeper Weed, Naturalised, Introduced, Garden Escape, Environmental Weed

A long-lived palm which grows to 5m tall outdoors but is shorter when grown as an indoor plant. It is distinguished by the leaflets which have a characteristic fishtail shape.

The flowers are cream and produce abundant seeds containing stinging crystals of oxalic acid which are toxic when eaten. Contact with the skin may result in severe chemical burns.

The seeds are spread by birds. Fishtail palm forms dense clumps from suckers in rainforest and vine thickets suppressing native vegetation. It is also spread by humans and is available in nurseries.

References: 1,23

GOLDEN SHOWER (NT TE-4)

Cassia fistula

Fabaceae

Native to south-east Asia

Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Golden shower is a semi-deciduous tree up to 8m tall and of similar width. It has large leaves up to 450mm long with many leaflets. Sweetly perfumed flowers are pea-shaped and borne in large golden sprays. Flowers develop into brown seed pods.

It is commonly used as a garden plant in Darwin and Katherine but rarely survives more than 15 years due to borers. It is spread by seeds which are produced prolifically. In Western Australia it has escaped on Koolan Island and in the King Leopold Range.

References: 1,10,20,24

NEEM (NT-TE-5)

Azadarichta indica

Meliaceae

Native to Bangladesh, India, Sri Lanka, Myanmar

Weed, Naturalised, Introduced, Garden Escape, Environmental Weed

Neem has been cultivated for thousands of years for its medicinal properties. Soaps, toothpaste and medicines are derived from the tree's leaves, bark, flowers, sap and seed kernels.

It is a tree to 15m tall with red-green pungent leaves composed of up to 12 leaflets. Flowers are white and honey-scented, borne in sprays up to 300mm long. The yellow fruit, about 15mm long with a single seed, is attractive to birds which spread it over a wide area. Humans also spread Neem as an ornamental shade tree.

Neem was planted around settlements and towns in the Northern Territory and is now naturalised around Darwin and Katherine with large stands in the Victoria River district. It is also naturalised in Queensland and Western Australia.

Neem was promoted for plantations in northern Australia in the 1970s and 1980s but these have now reached fruiting stage, thereby presenting major potential for spread. It is available in nurseries.

References: 1,2,22,23

POINCIANA (NT TE-6)

Delonix regia

Fabaceae

Native to Madagascar

Weed, Naturalised, Introduced, Garden Escape, Environmental Weed

Poinciana is a spreading deciduous tree up to 15m tall. It has twice-divided leaves with many pairs of leaflets. Red, yellow and white flamboyant flowers are followed by brown flattened pods containing up to 40 seeds. Seeds are shed and germinate near the parent plant, thus forming dense thickets if untended.

Poinciana is widely planted as a shade tree in streets, parks and home gardens and has become naturalised in Western Australia, Queensland and the Northern Territory near Darwin, Cobourg Peninsula and the Daly River.

References: 1,2,23

RUBBER VINE (NT TE-7)

Cryptostegia grandiflora

Asclepiadaceae

Native to South Africa and Madagascar

Weed, Quarantine Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed

Rubber vine is a vigorous climber with opposite, thick, leathery leaves and purple leaf stalks which exude a milky sap when damaged. The flowers are pink to white, trumpet-shaped bells. The fruit consists of two pods set at right angles to the stalk. Seeds have tufts of milky white hairs and are dispersed by wind and water.

It is closely related to *Cryptostegia madagascariensis* var. *madagascariensis* which is planted around Darwin and has established small populations on Melville Island

Rubber vine was first planted in gardens of mining towns in northern Queensland in the late 1860s and by 1917 was recognised as a weed around Charters Towers, Georgetown and Rockhampton. By 1991 it had infested over 700,000ha of tropical and sub-tropical Queensland and is now found over 20 per cent of the state.

It is declared noxious in Queensland, Western Australia and the Northern Territory and is recognised as one of the 20 Weeds of National Significance (WONS).

References: 1,8,23

SNAKEWEEDS (NT TE-8)

Stachytarpheta spp.

Verbenaceae

Native to Central and South America, South-east Asia and the Pacific

Weed, Noxious Weed, Naturalised, Quarantine Weed

Stachytarpheta is a genus of about 65 species of shrubs to 2m tall with a woody rootstock. The stems tend to be square in cross section. Leaves are opposite with toothed margins. Blue, white and pink flowers are borne year-round which adds to their popularity as garden plants. Flowers borne on stiff spikes are followed by seeds which are often spread in refuse and rainwater.

There are three species with similar weedy characteristics naturalised in the Northern Territory. They are declared noxious outside town areas. They are also naturalised in WA and Queensland.

Snakeweeds invade roadsides, creek lines and also monsoon vine forests where soil has been disturbed by pigs and buffalo. They are a contaminant in hay and pasture seeds and will invade newly sown or bared pastures. They are also spread from garden to garden by humans.

References: 1,8,23

WHITE TEAK (NT TE-9)

Gmelina arborea

Verbenaceae

Native to tropical moist forests of India, Myanmar
and Sri Lanka, to southern China

A deciduous tree 12-30m tall with light grey to brown bark initially smooth but becoming rough with age. The large leaves are up to 25cm long. They are borne opposite, are rounded and velvety beneath with yellow-brown hairs. The leafstalk is long, up to 12cm and hairy. The bright orange-yellow flowers are also densely hairy and borne on short stalks.

Fruits are gg-shaped about 2-2.5cm long becoming orange-yellow in colour. Each fruit has an egg-shaped stone with 1-4 seeds. Rabbits and deer eat the fruits and disperse the seeds.

White teak is grown widely in the tropics for timber and firewood. It has been planted extensively in Brazil for pulpwood and in Gambia for fuel and honey. It is often planted as an ornamental.

White teak is in the same family as Lantana. It casts a dense shade which may inhibit the growth of other species.

References: 23,25

YELLOW BELLS (NT TE-10)

Tecoma stans

Bignoniaceae

Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed

Yellow bells is a shrub or small tree up to 10 m tall which is widely grown in tropical gardens for its heads of bright yellow trumpet flowers. The leaves consist of 3-6 pairs of bright green leaflets paler on the undersides. The fruits are a long capsule containing winged seeds which are spread by wind.

Yellow bells is recorded as a weed in Argentina, Nicaragua and the United States of America. It is naturalised in Queensland, Western Australia and the Northern Territory.

References: 1,2,23

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NT ARID ZONE

AMERICAN COTTON PALM (NT AR-1)

Washingtonia filifera

Arecaceae

Native to south-western North America

Weed, Naturalised, Introduced, Garden Escape, Environmental Weed

American cotton palm is a tall distinctive palm growing to 16m tall. It has a fat grey trunk and spreading crown of grey-green fan shaped leaves. It is highly adaptable, growing in a range of climates and soil types and drought tolerant when fully established.

Planted as a street and park tree, it fruits readily and seeds germinate well.

References: 1,20

COUCH GRASS (NT AR-2)

Cynodon dactylon

Poaceae

Native to tropical Africa, Australia

Weed, Sleeper Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Casual Alien

Other common names include Bermuda grass, Devil's grass, Florida grass, Twitch grass

Couch grass is a low-growing perennial with grey-green leaves and runners which root readily. It spreads rapidly by seed and runners and even small fragments will root if dumped with garden refuse.

It is regarded as an Australian native and is widely planted as a lawn grass. It occurs in all states and territories. It invades wetlands and river edges in southern Western Australia.

References: 1,10,15

FOUNTAIN GRASS (NT AR-3)

Pennisetum setaceum

Poaceae

Native to north east Africa

Weed, Quarantine Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape

Fountain grass is a densely tufted perennial growing to 900mm. The flowerhead is a long feathery spike which makes it attractive for garden cultivation. It spreads by seed, transported by wind and water or carried on clothing and in dumped garden waste.

It has been listed as a weed in Hawaii, the United States and South Africa. It has become naturalised in the Northern Territory, Queensland, NSW, Western Australia and South Australia particularly on Eyre Peninsula. It is still sold as an ornamental.

References: 1,2

HIMALAYAN RAINTREE (NT AR-4)

Dalbergia sissoo

Fabaceae

Native to India

Weed, Quarantine Weed, Noxious Weed, Naturalised, Garden Escape, Environmental Weed, Cultivation Escape

Himalayan rain tree is a tall deciduous tree growing up to 20m. The leaves consist of 3-7 rounded leaflets. It has cream pea-shaped flowers which develop into pods up to 200mm long. It has a long taproot and numerous surface roots which produce suckers.

Himalayan rain tree spreads mainly by vigorous suckers.

It is naturalised in Queensland and is declared noxious in the Northern Territory where it has naturalised around Darwin. It occurs on sands and gravel watercourses in other parts of the Territory.

References: 1,2,8

HYBRID MOTHER OF MILLIONS (NT AR-5)

Bryophyllum daigremontianum x *B. tubiflorum*
= *Bryophyllum daigremontianum* x *B. delagoense* cv. 'Houghtonii'

Crassulaceae

Horticultural origin

Naturalised

Bryophyllums are succulent perennial herbs with fleshy mottled stems and leaves. Flowers are orange, yellow or red on stalks held above the foliage. Plants may form on the parent plant or regrowth may occur from tiny leaves or stems on the ground.

This plant is spread by plantlets carried by water in streams and rivers and by plantlets attached to animals and in mud. Virtually no seed is produced.

It is widespread in south-east Queensland but not as common as *B. delagoense*. It is locally common in northern NSW where it grows near houses or where dumped as garden waste. It is also spreading along watercourses. Plants, particularly the flowers, are poisonous to stock.

This plant may be sold under the former name of Kalanchoe.

References: 1,19,20

LEAD TREE (NT AR-6)

Leucaena leucocephala ssp. *glabrata*

Mimosaceae

Native to Mexico

Naturalised

Also known as Coffee bush

Lead tree grows to about 6m and has been planted extensively throughout the tropical world to provide cattle fodder, shade and firewood. It has leaves composed of many leaflets, creamy-yellow rounded flowers and flattened seed pods. Propagation is from seed.

It is valued as a high protein tree in the Northern Territory where it is grown for use in feedlots. It has become naturalised across northern Australia from the Kimberley to coastal Queensland. In the west it extends south from the Pilbara to Exmouth and in the east to northern NSW.

It has formed dense thickets along some creek lines in North Queensland and may have suppressed regeneration of native species.

References: 1,2,10

MAYNE'S PEST (NT AR-7)

Verbena aristigera
= Verbena tenuisecta

Verbenaceae

Native to South America

Weed, Quarantine Weed, Naturalised, Introduced, Cultivation Escape

Also known as Moss verbena

Mayne's pest is a small annual or perennial herb growing to 500mm. It has a prostrate sprawling habit. The aromatic stems are square in cross-section. The leaves have three narrow, toothed leaflets. The showy flowers are borne above the foliage and coloured mauve, purple, blue or white.

References: 1,20

PEPPER TREE (NT AR-8)

Schinus areira
= Schinus molle var. *areira*

Native to northern South America to Mexico

Weed, Naturalised, Garden Escape, Environmental Weed

Other common names Californian pepper tree, Peppercorn tree, Peruvian mastic tree

Pepper tree is a large spreading tree growing to a height of 12m. It has drooping fern-like leaves with many leaflets which are aromatic when crushed. Flowers hang in clusters with male and female flowers on separate plants. Flowers on the female trees develop into bright red berries with a hard seed which germinates best when passed through the guts of birds. Many seeds are stored in the soil.

Mature trees are resistant to fire and drought and are able to sprout from the rootstock if damaged.

Pepper tree is widely planted in homestead gardens and stockyards in dry areas of NSW, Victoria, South Australia and the Northern Territory. It has invaded lowland grassland, woodland and dry forest. It has been reported as spreading in riparian vegetation near Warwick in South-east Queensland and in old settlements in the Western Australian Goldfields region. It is native to South America and has been planted as a street tree in southern Europe.

Pepper tree was listed for sale in nursery catalogues in Victoria in the l870s and l880s and is still available for sale from many nurseries.

References: 1,6,14

UMBRELLA SEDGE (NT AR-9)

Cyperus involucratus

Cyperaceae

Native to Africa

Weed, Naturalised, Introduced, Environmental Weed, Garden Escape, Cultivation Escape

Cyperus is a large genus of about 600 species of annual and perennial grass-like herbs occurring throughout the world except for very cold regions. There are about 130 species native to Australia.

Umbrella sedge stems are triangular in cross section and up to one metre tall. The flowerhead is umbrella-like and the plant is grown for this feature. It will grow on creek banks and in water up to 400mm deep. Once established it is very persistent.

References: 1,3,10

WHITE CEDAR (NT AR-10)

Melia azedarach

Meliaceae

Native to south-east Asia and northern Australia

Weed, Noxious Weed, Naturalised, Introduced, Garden Escape, Environmental Weed, Cultivation Escape, Casual Alien

Other common names include Chinaberry, Cape lilac, Indian bead tree, Persian lilac.

White cedar is a spreading deciduous tree growing to 15m tall with leaves composed of many leaflets 20-50mm long. It produces abundant sprays of fragrant lilac flowers followed by many hard yellow berries 10-20mm long. These are poisonous to children and stock but eaten and distributed by birds.

Although native to the Kimberley it is naturalised and spreading in wasteland near Perth. It is widely used as a street and park tree in western NSW and western Queensland.

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