CRC for Australian Weed Management
PMB 1, Waite Campus
Glen Osmond SA 5064

10 October 2003

Mr Michael McLean
Secretary ECITA References Committee
Parliament House
CANBERRA ACT 2600

Dear Mr McLean,

Re: Submissions to Senate ECITA Committee on the Regulation, Control and Management of Invasive Species

Enclosed please find the Weeds CRC submission to the above Senate Committee. Copies of all publications mentioned in our submission and listed as References are available from us if required.

The Weeds CRC has a Vision Statement currently at the printers, which covers many of the issues raised in our submission. I would be grateful if we could send copies of this to the Senate Committee as soon as it is available from the printer. My staff would also welcome any opportunity to discuss our submission, or to make a presentation, perhaps to show some images of the impacts of weeds on the natural environment, if that would be helpful to the Committee.

Yours sincerely,

RACHEL McFADYEN

CEO
CRC for Australian Weed Management

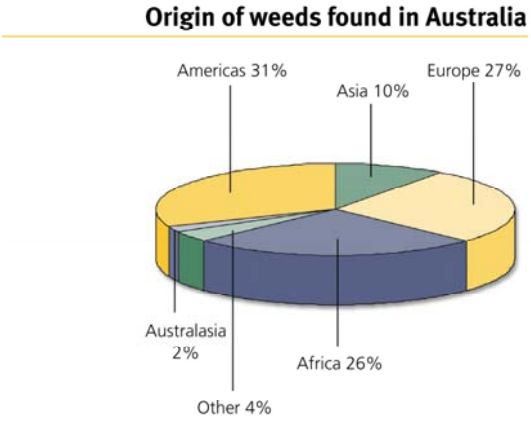
Cooperative Research Centre for Australian Weed Management

Submission to Senate ECITA Committee on the Regulation, Control and Management of Invasive Species

October 10th 2003

SUBMISSION TO THE SENATE ENQUIRY

Note: this submission from the Cooperative Research Centre for Australian Weed Management deals only with invasive plants, although some issues will be the same for invasive animal species.



Apart from a handful of Australian plants which are becoming invasive in parts of the country outside their native range (following widespread planting), all major weed species in Australia are introduced. The major international sources of weeds into Australia in the 25 years between 1971 and 1995 are shown in the pie chart (left).

All costs quoted in this paper are **per year** unless otherwise stated.

1.a) nature and extent of the threat that invasive species pose to the Australian environment and economy:

Threat to the Economy

Invasive plants (weeds) cost Australian agriculture between $3 and $4 billion per year in production losses and control costs. There are no recent reliable data on the total amount, but data exists for individual weeds or industries. The cost of weeds to the winter grain industry in 1999 was $1.2 billion (Jones et al 2000) and parthenium weed cost the Queensland grazing industry $17 million in 1991 (Kloessing 1994). In 1997 the rapidly spreading invasive grass serrated tussock cost the grazing industry $40 million in NSW and $5.1 million in Victoria (Jones & Vere 1998; Nicholson et al 1997). It has been estimated that the parasitic weed branched broom rape will cost Australian agriculture at least $200 million by 2033 if the current eradication program does not succeed (EconSearch 2003).

Impact on the Environment

There are few accurate data on the impact of invasive plants on the Australian environment but it is known to be enormous. The worst invasive weeds are the "transformer" species, capable of completely destroying the ecosystem either by replacing all other vegetation with a weedy monoculture or by permanently altering fire, water or nutrient regimes. The Mexican shrub *Mimosa pigra* replaces the grassy wetlands of Kakadu with a sterile monoculture, and is now threatening the wetlands of central Queensland. Rubber vine overtops and destroys the riverine vine thickets of north Queensland, with a dense evergreen canopy that destroys all vegetation from the herb

layer to the canopy trees. Bridal creeper overtops vegetation in the mallee and woodlands of southern and western Australia, completely replacing the herb and shrub layers, and preventing regeneration of the dominant trees. Bitou bush and bone seed in coastal eastern Australia have replaced native dune vegetation: a recent survey recorded bitou bush on 900 km of the coastline (80% of the NSW coast), with an estimated 36 000 ha infested. Olive hymenachne grass threatens wetlands in northern Australia, replacing open water lagoons with dense mats of grass and destroying the habitat for fish and water birds. Pond apple is rapidly spreading in coastal north Queensland, destroying melaleuca swamps. Lantana covers 4 million ha in eastern Queensland and NSW, where it replaces natural grasslands and prevents regeneration of rainforest and eucalypt woodlands. Blackberry infests 8 million ha in NSW and Victoria where it has a similar impact.

Weeds CRC scientists are currently investigating the economic cost of invasive weeds in natural ecosystems (Odom et al 2003).

Impact on Biodiversity

Complete replacement of native vegetation by invasive plants on this scale has a devastating impact on the native flora and fauna, but few studies have been undertaken. Invasive exotic weeds such as bitou bush (*Chrysanthemoides monilifera*), bridal creeper (*Asparagus asparagoides*), scotch broom (*Cytisus scoparius*), lantana (*Lantana camara*), mimosa (*Mimosa pigra*) and tamarisk (*Tamarix aphylla*) have been shown to decrease biodiversity and conservation values of infested land (Braithwaite *et al.* 1989; Fensham *et al.* 1994; French & Zubovic 1997; Griffin *et al.* 1997; Sorensen & Jusaitis 1995 and Waterhouse 1986).

Invasive weeds such as lantana reduce floral diversity by competing with native species for water and nutrient, shading out lower vegetation strata and altering fire regimes (Fensham *et al.* 1994). Invasive weeds can indirectly impact on animal diversity by replacing the native plants on which animals depend (Braithwaite *et al.* 1989; Griffin *et al.* 1989), altering fire regimes (Fensham *et al.* 1994) and disrupting food webs (Schulz & Walker 1997). Weeds are known to be a key threat to several important conservation zones (Table 1). Available data on biodiversity impacts are being synthesised in a paper to be published in 2004 (Grice et al in press).

Table 1: Examples of conservation zones where invasive weeds are reducing native biodiversity

Weed	Conservation Zone	Reference
Lantana (*Lantana camara*)	Forty Mile Scrub National Park, Qld	Fensham *et al.* 1994
Mimosa (*Mimosa pigra*)	Kakadu National Park, NT	Braithwaite *et al.* 1989
Scotch broom (*Cytisus scoparius*)	Barrington Tops National Park, NSW	Waterhouse 1989

A study of the rare shrub *Pimelea spicata* found that it was in danger of extinction due to the invasive plant bridal creeper. *Pimelea spicata* is found in the Cumberland Plain woodland of NSW, itself the first natural vegetation type to be declared 'endangered' under the Commonwealth Government's EPBC Act. Research conducted by the Weeds CRC found that growth of *Pimelea spicata* was directly reduced by competition (above and below ground) from bridal creeper.

Another example is the Richmond Birdwing Butterfly, which in 1870 was reportedly found in great numbers in the streets of Brisbane. Today, no natural breeding sites are known between Caboolture and Nerang in SE Queensland. Richmond Birdwing Butterflies normally lay eggs only on native *Pararistolochia* vines, but most of these vines have disappeared with the clearing of coastal rainforests. Remaining butterflies mistake the introduced ornamental Dutchman's Pipe vine for the native relative, and lay their eggs on it. Toxins in this introduced plant kill young caterpillars.

A list is attached at Annex 2 of threatened species where invasive plants are a known key threat.

Management Costs

Management of invasive plants in the environment is expensive and is currently not being adequately resourced. The State and Local Governments in Queensland spend $24 million on weed and pest animal management (AEC 2002) and expenditure in other States is on a similar scale. Local Governments and bushcare groups in NSW spend at least $2 million controlling bitou bush, but the infestation still continues to spread (CIE 2001).

1.b) the estimated cost of different responses to the environmental issues associated with invasive species, including early eradication, containment, damage mitigation and inaction:

Prevention and Early Eradication

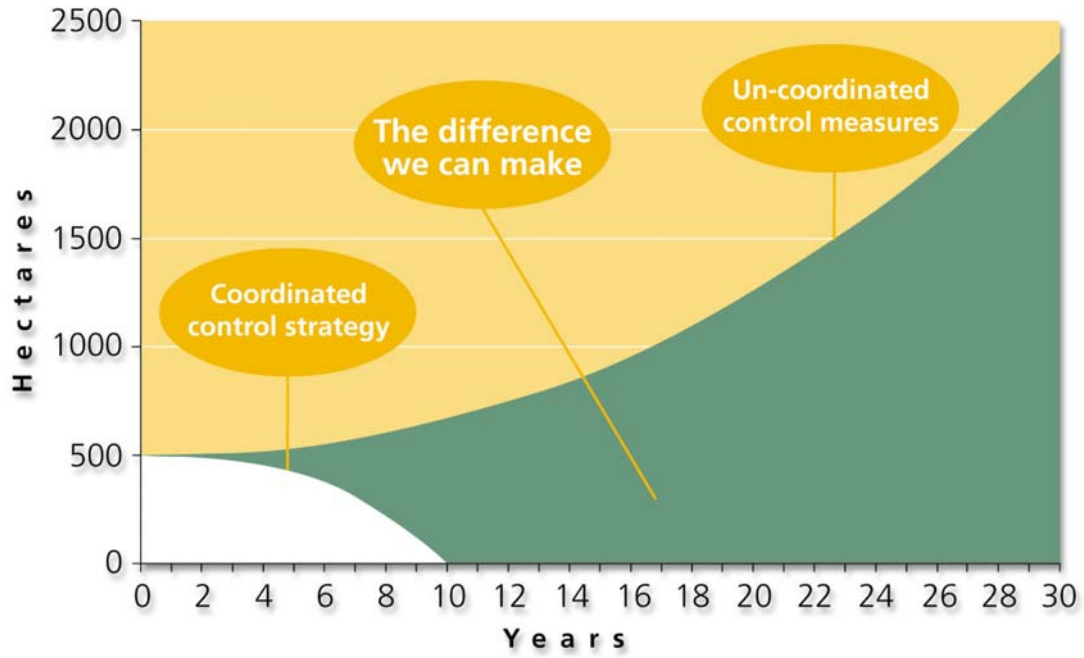
There have been many studies demonstrating the economic benefits of preventing invasions and the early eradication of invasive plants where these affect agriculture (eg Morfe et al 2002; AEC 2002; Cunningham et al 2003). The current eradication campaign against branched broomrape is estimated to have a benefit/cost ratio of 7.9 with an Internal Rate of Return of 22%. Containment of rapidly spreading weeds such as serrated tussock is expensive but still much cheaper than damage mitigation or inaction after the weed has become widespread. There is less information for weeds affecting the environment but the proportional costs of the different responses are likely to be the same. Possingham et al (2002) suggest that early eradication of invasive plants saves 83 native species (plants and animals) from extinction for each $1 million spent. This compares with only 7 species saved per $1 million spent on the herbicidal and mechanical control of weeds once they are widespread, or 1 species saved per $1 million spent on maintaining environmental flows in rivers.

Biological Control

Once invasive plants are widespread, the most cost-effective control method is biological control using insects or plant diseases introduced from the country of origin of the weed. The biological control of skeleton weed in 1970 had a benefit/ cost ratio of 112 (Marsden et al 1980). Biological control of Patterson's curse with the crown weevil gave a benefit/ cost ratio of 52 and an IRR of 22 % (CIE 2001). The partial control of parthenium weed in

central and north Queensland by 2001 resulted in a benefit/ cost ratio of 18 and a NPV of $95.7 million (AEC 2002). Biological control is also sustainable in the long-term and has very few undesirable non-target effects (McFadyen 1998).

Figure 1: The difference we can make



At year zero initial infestation is 500ha
Without a coordinated control strategy, infestation will cover 2400 ha after 30 years
With a coordinated control strategy the aim is eradication over 10 years
The green area represents the difference we can make

Source: Weiss,J., Morfe, T.A., McLaren, D. (2002), 'Assessing the financial implications of alternative investment options in weed control' in *13th Australian Weeds Conference Papers & Proceedings*, Plant Protection Society of WA Inc., Merideth.

Inaction

Inaction as a response to invasive plants results in economic costs from the loss of ecosystem services including tourism in some areas, but this is not often quantified. Waterweeds such as cabomba or olive hymenachne are known to have a very serious negative impact on water quality in invaded lakes and lagoons, and trees which invade riparian zones such as camphor laurel or willows also have significant negative effects on the water quality in rivers and streams. A review is currently underway to collate information on the economic cost of invasive plants on the environment, ie the costs associated with damage mitigation or inaction, and this review should be available by December. Loss of biodiversity is another consequence of inaction, and the attached Table lists some threatened and endangered species where invasive plants are known to be a major cause pushing the species towards extinction.

1.c) the adequacy and effectiveness of the current Commonwealth, state and territory statutory and administrative arrangements for the regulation and control of invasive species;

Weed Risk Assessment System

Between 2500 and 3000 introduced plants are now naturalised (self-sustaining populations maintained in the wild) in Australia, and about 300 of these have already become weeds. At least 80% of all invasive plants in Australia were deliberately imported, 65% as ornamental plants (data for 1971-95) and about 15% for pasture or forestry. Since 1999, Commonwealth legislation ensures that all new proposed plant species imports into Australia are subjected to a Weed Risk Assessment System (WRAS), which assesses the likelihood that they will become weeds based on attributes known to be associated with invasiveness and a high probability of negative environmental impact. As a result, we believe that future deliberate importations of new invasive plants are less likely than in the past, and this is an enormous benefit. However, there is an increasing problem of international ordering of plants through the internet, where the plants are sent by post and the purchasers in Australia may not be aware that importation of the material is illegal or a weed threat.

Furthermore, at present there are many potentially invasive plants on the AQIS permitted list, and therefore not subject to the WRAS process. This includes instances where entire genera (related species) have been granted blanket approval for importation. There are also problems where a plant may be present in Australia but not invasive, therefore further importations would normally be permitted. If new strains are imported, the result may be development of an invasive population. For example, fiddlewood (*Citharexylum spinosum*) has been widely planted as a shelter tree throughout eastern Australia but all trees appear to be from a single male clone. If female trees are imported, fruiting will result and the tree may become invasive in the north, as has happened in Hawaii, Fiji, and the Galapagos Islands (McFadyen pers. comm. 2003). A review of the WRAS currently underway through the Plant Industry Standing Committee should address these deficiencies.

Eradication vs Containment

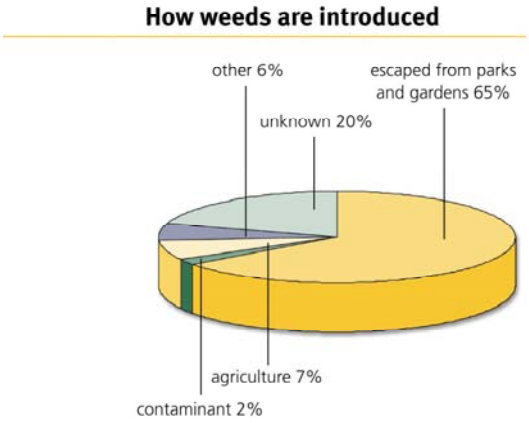
Given that rapid eradication of new infestations is by far the most cost-effective management, it is important that systems are in place to discover new infestations, and then to organise and fund eradication programs. Most States now have such a system, but the organisation and funding varies greatly between States. For weeds new to Australia, the system for Commonwealth/State joint action for the eradication of newly-discovered invasive plants functions reasonably well so long as eradication is deemed to be possible.

However if the incursion is beyond eradication, there is no system for joint Commonwealth/State action or joint funding for any containment program, even when all parties agree that containment is feasible and cost-effective. Programs to contain an invasive plant in the small geographic area where it may occur, and to eradicate all infestations beyond that area, are known to be the most cost-effective method after total eradication, yet there is no existing administrative arrangement for a joint Commonwealth/ State program for containment. For example, branched broomrape is currently confined to a small area of South Australia, and is the subject of a jointly-funded eradication

program. If this fails, there is no mechanism for joint action to continue a containment program, even though such a program would clearly benefit all the southern States.

Trading and planting of invasive plants in Australia

There is no consistent Australia-wide legislation controlling the trading and planting of listed potentially invasive plants (Randall 2001). Legislation controlling the sale and use of invasive plants is predominantly a State responsibility, is inconsistent on a national scale and is limited to prohibiting the sale and planting of declared noxious weeds. The Weeds CRC and Nursery Industry Association of Australia have produced lists of potentially invasive plant species. The sale of these potentially invasive, non-declared plants, in the nursery and market trade is not restricted by any legislation. For example, duranta varieties are freely sold and used in large-scale landscaping although they have recognised invasive potential (Randall 2001), their copious berries are attractive to birds and the seedlings can be found surviving in coastal habitats. Several species in the genus Oxalis are major weeds in southern Australia, yet new species are being sold by several nurseries. The Indian tree neem is promoted for planting in northern Australia for the production of natural insecticides, yet it is already invading riparian zones along several northern rivers. As 65% of our present weeds were deliberately introduced as ornamentals, it is very important that further mass sale and planting of new potential invasive plants be restricted. There is also a need for more effective policing of the sale or planting of those plants that are prohibited under State legislation.



(Analysis of weeds introduced in the 25 years between 1971-1995)

1.d) *the effectiveness of Commonwealth-funded measures to control invasive species;*

CRC for Australian Weed Management

Under the CRC program within the Department of Education, Science & Technology, the Government has funded the previous CRC for Weed Management Systems (1995-2001) and the present CRC for Australian Weed Management (2001 – 2008). Commonwealth funding to the two Weeds CRCs has been $2.3 to $3.3 million per year, a total of $20.3 million in the period 2001-08. This level of funding has permitted significant extra research into improved weed management nationwide. Research by the first Weeds CRC in the period up to 2000 resulted in benefits that greatly exceeded expenditure, with different projects having an IRR between 29 and 62% (CIE 2001). CRC advice and

assistance in preventing the incursion of two new weeds, Mexican feather grass and cotton thistle, saved the Australian economy an estimated $83 million in present value terms. Commonwealth expenditure on the Weeds CRC is thus a highly effective use of Commonwealth money.

National Weed Strategy

The National Weed Strategy and the focus on the 20 Weeds of National Significance (WONS) is an excellent initiative of this Government but needs better on-ground coordination and continuity. For example, the agreed National Management Strategy (2001) for pond apple, one of the WONS that is rapidly invading swampy areas of far north Queensland, calls for its eradication over a 20 year period. Yet virtually no Commonwealth funds were allocated for pond apple control or management during 2001 or 2002, and as a result its spread is continuing unchecked except where some locally-funded groups are functioning. It is still not clear whether funding for management of the WONS will continue after 2004, and there are no alternative sources of Commonwealth funds available for management of environmental weeds. Money for management of the 20 WONS is also allocated to Regional Bodies or community groups on a short-term basis (maximum 3 years) and this does not promote long-term nationally coordinated action to manage even the most serious weeds.

North Australia Quarantine Survey (NAQS)

Early eradication requires an efficient system to ensure that new infestations are discovered and identified while still confined to a small area. The Commonwealth-funded NAQS system provides staff to survey north Australia for invasive plants and animals, and alerts Commonwealth and State authorities to the need for eradication when invasive species are found. It is an excellent system, and has already saved many times its direct costs. The system needs to be maintained and extended into southern Australia.

Containment vs Eradication

As already described, the existing system for joint Commonwealth/ State funding and action for eradication of newly-discovered invasive plants or animals needs to be extended to include their containment, where eradication is not feasible but continued containment to a limited geographical area within natural boundaries is both feasible and cost-effective. At present, the costs of such containment programs are wholly born by the State in which the weed is present, and there is no system to share the costs among all benefiting States.

The Natural Heritage Trust funded a study to prioritise "sleeper weeds" for eradication (Cunningham et al 2003) which is an excellent initiative, but the effort will be wasted if no funds are made available, or joint Commonwealth/State funding set in place, for the actual on-ground eradication of the 10 top-priority weeds.

Biological Control

Biological control is the only sustainable management method for widespread weeds, and has an excellent success record and few off-target effects (McFadyen 1998, 1999). Australia has been a world-leader in biological control, based on the work of CSIRO and State Government research units. However, biological control programs are long-term, typically requiring funding for 5 to 10 years as well as expensive quarantine infrastructures, and financial support for biological control is currently under serious threat. The Weeds CRC has several projects to improve the processes of biological control, from the selection

of agents through the host testing procedures to the monitoring and evaluation of the results. The value of this research will be lost unless there is continued long-term support for the facilities and staff needed for active biocontrol programs. There is an urgent need for a national action plan for biological control of invasive plants. Greater Commonwealth support is needed for infrastructure, legislation, review processes (EA and AQIS), and for the existing CSIRO programs based in Canberra, Brisbane and Perth. All previous studies have demonstrated returns of $4 to $20 for each $1 invested, and an investment of $50 million over the next ten years would go a long way towards achieving effective and permanent control of many of our major weeds.

A Way Forward

The Weeds CRC is proposing a new package of weed control programs which reflect the urgent need for greater national capacity in the science and management of invasive plants. We believe that, if implemented over 10 years, a great deal could be achieved. The package, set out in Annex 1, calls for more trained people in the field as well as a greater effort to train young scientists **and** retain them in Australia to work on weed science and develop new control measures. The proposed package includes the 10-year biocontrol program mentioned above, as well as a program aimed at eradicating certain 'sleeper' weeds before they become established.

To complement this new effort, substantial resources need to be dedicated to enhancing community awareness, capacity and engagement. Motivated local communities will always remain in the forefront of weed control, and effective technical support for them will be highly cost-effective. Boosting the already successful schools Weed Warriors program, and creating a new, easy-to-use web-based system to deliver weed information to schools and communities, are key parts of the proposed package.

Annex 1

National Weeds Action Plan – a proposal by the Weeds CRC

New action programs	Cost over 10 years
1. Safeguard Australia Program • new invasive plants discovered and removed through more skilled botanists in the field	$20m
2. Eradication of New Invasive Plants Program • new invasive plants or 'sleepers' eradicated by community groups with technical support	$10m
3. Invasive Species Action Program • thousands of community groups skilled and equipped to take action on invasive species through 100 new technical support positions based across regional Australia	$100m
4. Invasive Plants Biocontrol Program • bring 50 of Australia's worst weeds under control by backing biocontrol, Australia's most effective long-term weed control technique • run at least ten years, with the aim of providing $1m each for 50 of the nation's worst weeds	$50m
5. Weed Research Infrastructure Program • train young scientists in weed science AND retain them in Australia	$70m
6. National Weed Awareness Program • Lift public understanding and awareness of the weed threat and what they can do about it – there's a lot!	$3m
7. Weed Warriors Program • Train children to understand and take action on invasive plants through a national expansion of this already highly successful Victorian schools program	$10m
8. Weed Web Program • Empower and equip many more community groups to fight invasive plants	$5m
TOTAL	$268m over ten years

Annex 2

Australian flora and fauna threatened by invasive plants

State	Threatened flora and fauna	Weeds	Comment on weed	Comment of threatened species
Tasmania	**tussock skink** *(Pseudemoia pagenstecheri)*	**gorse** *(Ulex europaeus)*	Gorse is undoubtedly one of Tasmania's significant weeds of concern. As an environmental weed, gorse has become a major problem by invading bushland and conservation areas throughout the State. One of the 20 'Weeds of National Significance'.	99.5% of this skink's habitat has already been cleared. It is vital that the remaining habitat be maintained and not be allowed to be further degraded by weed invasion.
NSW	**zieria prostrata** *(Zieria prostrata)* **austral toad-flax** *(Thesium australe)*	**bitou bush** *(Chysanthemoides monilifera* ssp *rotundata)*	Forms a dominant part of the flora along 80% of the NSW coastline, invading beach-dune vegetation and coastal grasslands, healthlands woodlands, forests and rainforests.	Both species are nationally threatened plants whose continuing survival is directly threatened by bitou bush invasion. The total population size of Ziera prostrata is estimated to be fewer than 1500 individuals, with the four populations occupying an area of less than one hectare in total.
NSW	**Cumberland Plain Woodland** **pink pimelea** *(Pimelea spicata)*	**bridal creeper** *(Asparagus asparagoides)*	Research conducted by the Weeds CRC found that growth of pink pimelea was reduced by competition (above and below ground) with bridal creeper. One of the 20 'Weeds of National Significance'.	Cumberland Plain woodland, the first natural vegetation type to be declared 'endangered' federally. The rare shrub Pimelea spicata is threatened with extinction by bridal creeper
NSW	**hairy quandong** *(Elaeocarpus williamsianus*)	**lantana** *(Lantana camara)*	Lantana prevents survival and growth of tree seedlings and is one of the 20 'Weeds of National Significance'.	Occurs in rainforest on the north coast of NSW

NSW & Victoria	**mountain pygmy-possum** *(Burramys parvus)*	**English broom** *(Cytisus scoparius* ssp *scoparius)* **blackberry** *(Rubus fruticosus* L. agg)	These weeds harbour foxes which prey on the possum. Blackberry is one of the 20 'Weeds of National Significance'	The only mammal restricted to the alpine and subalpine areas of mainland Australia, the Mountain pygmy-possum was thought to be extinct but was rediscovered in 1966. Occurs in Mt Bogong, Bongong High Plains, Mt Loch. Mt Higginbotham and Mt Buller in Victories. In NSW found in Kosciusko National Park.
Victoria	**sunshine diuris** *(Diuris fragrantissima)*	**Chilean needle-grass** *(Nassella neesiana)*	One of the 20 'Weeds of National Significance', Chilean needle grass is invading the site of the last wild population of sunshine diuris.	This orchid was once common on the basalt plains west of Melbourne where it grew in native grasslands dominated by native Kangaroo Grass.
Victoria	**Eltham copper butterfly** *(Paralucia pyrodiscus lucida)*	**Cape broom** *(Genista monspessulana)* **radiata pine** *(Pinus radiata)* **quaking grass** *(Briza maxima)*	These weeds invade the butterfly's habitat and compete with the native food plants.	The Eltham Copper was discovered in 1938 in Eltham, an outer suburb of Melbourne. After 1956 is was thought to be extinct until a population was found again in 1986. Now found at ten site around Eltham, one site at Castlemaine and in six small populations in Kiata-Salisbury area.
SA	**Blue gum woodlands** *(Eucalyptus leucoxylon)* **Metallic Sun Orchid** *(Thelymitra epipactoides)*	**perennial veldt grass** *(Ehrharta calycina)*	Invades woodlands and competes with native plants for food, light and space.	Understorey plants such as the metallic sun orchid are being displaced by perennial veldt grass.

SA	**common white spider orchid** *(Caladenia argocalla)*	**topped lavender** ***(****Lavandula stoechas)* **soursobs** ***(****Oxalis pes-caprae)* **St John's wort** *(Hypericum perforatum)* **Cape tulip** *(Moraea flaccida)* **gorse** *(Ulex europaeus)* **hawthorn** *(Crataegus monogyna)* **watsonia** (*Watsonia meriana* var *bulbillifera*)	Many of the invasive plants that threaten this plant have come from gardens. Sixty-five (65%) per cent of all invasive plants have escaped from parks and gardens.	Found only in the Mount Lofty Ranges of SA. Just 500 flowering plants are known to exist. Irony of its name!
QLD & NSW	**Richmond birdwing butterfly** *(Ornithoptera richmondia)*	**Dutchman's Pipe** *(Aristolochia elegans)*	Toxins in this introduced plant kill young caterpillars.	In 1870 the Richmond Birdwing Butterfly was reportedly found in great numbers in the streets of Brisbane. Today, no natural breeding sites are known between Caboolture and Nerang. Richmond Birdwing Butterflies normally lay eggs only on native Pararistolochia vines. Most of these vines have disappeared with the clearing of coastal rainforests. Remaining butterflies mistake the ornamental Dutchman's Pipe vine for a native Pararistolochia vine and lay their eggs on it.
QLD	**aponogeton queenslandicus** *(Aponogeton queenslandicus)*	**para grass** *(Brachiaria mutica)* **Hymenachne** *(Hymenachne amplexocaulis)*	Both Hymenachne and Para grass were deliberately introduced as pasture grass. Hymenachne is one of the 20 'Weeds of National Significance'.	A rare water plant found in the wetlands of the Burdekin region, it is being smothered by para grass and hymenachne.

QLD	**jabiru** (*Ephippiorhynchus asiaticus australiensis)*	**Para grass** *(Brachiaria mutica)* **Hymenachne** *(Hymenachne amplexocaulis)*	Weed invasion of wetlands are the major threats to Jabirus	A large bird of wetlands and adjacent grassland and savanna across the Burdekin region of QLD. They build large nests of dry sticks, grass and paperbark in trees within or adjacent to wetlands.
QLD	**Brolga Park zieria** (*Zieria* sp. "Brolga Park")	**Lantana** *(Lantana camara)*	Lantana covers 4 million hectares nationally. It is one of the 20 'Weeds of National Significance'	The endangered Zieria "Brolga Park" is found only within the Tall Open Sclerophyll Forests of Triunia National Park, behind Nambour on the Sunshine Coast. Ninety per cent of the population was covered in lantana. However, Park efforts have reduced the cover of lantana to less than 5 % and the remaining Zieria are now recovering.
QLD	**Proserpine rock wallaby** *(Petrogale persephone)*	**pink periwinkle** *(Catharanthus roseus)* **rubbervine** (Cryptostegia grandiflora)	A QLD Herbarium survey found that the pink periwinkle is closely related to the wallabies' natural food plants. However, unlike the native plants, it is toxic when eaten by the wallabies. It is thought that the weeds arrived as windblown seeds from the mainland.	The Proserpine rock-wallaby occurs in Conway National Park, Gloucester Island National Park, Dryander National Park, on Clarke Range near Proserpine, on the northern, eastern and sections of the western margins of the Conway Range, and around the town of Airlie Beach. The population that occurs on the small island of Gloucester is most threatened by the weeds mentioned.
WA	**wing-fruited lasiopetalum ms** *(Lasiopetalum pterocarpum)*	**watsonia** (*Watsonia meriana* var *bulbillifera*) **blackberry** *(Rubus* aff. *selmeri)* **gladioli** (*Gladiolus undulates)*	Gladiolus and watsonia are two bulbous plants commonly found in home gardens. They have most likely established themselves in natural areas through the inappropriate dumping of garden waste. Sixty-five (65%) per cent of all invasive plants have escaped by parks and gardens.	The Nationally Endangered Wing-fruited lasiopetalum is known from a single wild population of 17 plants, in an area of National Park in the Serpentine area of WA.

NT	**yellow chat** *(Epthianura crocea tunneyi)*	**mimosa** *(mimosa pigra)*	The recovery plan for the yellow chat states that "The major current threat is the invasion by the weed *Mimosa pigra*, which is thought to render the habitat unsuitable". Mimosa is one of the 20 'Weeds of National Significance'	The race of yellow chat native only to the western Arnhem land in the NT has a population of just 500 individuals. They inhabit the coastal and subcoastal floodplains from the Mary River to the East Alligator River, NT.
ACT & NSW	**button wrinkewort** *(Rutidosis leptorrhynchoides)*	**introduced pasture grasses**	Introduced pasture plants have a bad reputation in Australia. For example, of 400 pasture plants introduced into northern Australia, 4 have proved useful and 60 have become weeds.	Button wrinklewort, also known as the Canberra daisy in threatened by competition of introduced pasture grasses.

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