

UNIFORM STATE/TERRITORY CONTROLS OVER THE TRADE AND DISTRIBUTION OF HIGHLY INVASIVE PLANTS.

(as endorsed at SCARM 17 Item 1.2.7 in Wellington on 07/03/2001)

Introduction:

This paper proposes uniform (national) restrictions over the deliberate trade and distribution* of certain species of invasive plants, as follows:

- plant species/genera that have the potential to become pests with nationally significant impacts,
- established plant species/genera approved as weeds of national significance (WONS).

Part A deals with potentially invasive plant species that are either absent from Australia or in their very early stages of naturalisation and Part B deals with established weeds that have significant national impacts.

*includes sale and possession of plants

PART A: Potential weeds

Commonwealth restrictions over the import of plants with weed potential were substantially strengthened in 1997 with the adoption of the 'Weed Risk Assessment' (WRA) protocol. The WRA protocol, however, is only applied to material that has been declared to quarantine officers by law-abiding importers. Illegal or accidental entry of potential weeds remains a threat, particularly seeds that can be easily smuggled through the postal system via international "mail-order" plant catalogues and between private plant collectors. Mail-order catalogues are becoming readily available on the internet and many seed companies offer a mail-order service.

Once a potentially invasive plant has been introduced, either accidentally or illegally through the postal system, it becomes a State/Territory responsibility to restrict trade and distribution of that species and to detect cultivated and naturalised specimens. Over the past nine years a number of high priority potential weed species have appeared in Australia, despite being nominated as high priority quarantine targets in 1991. Some examples include:

- *Equisetum* species have infiltrated the medicinal plant trade in several States and one species was planted in a Brisbane botanic garden,
- Red sesbania (*Sesbania punicea*) appeared in a wholesale nursery in Queensland in 1993.

Although it is possible that some, or all, of these plants were present in the country for more than nine years, some may have been smuggled in as seed. Once through

the quarantine barrier, trade and distribution of these species is poorly restricted and in some States/Territories there are no barriers to trade, possession and widespread planting.

This paper presents four criteria developed by an AWC working group. These criteria were used to select a “priority list” of potential weeds. These species and genera need to be declared in every State/Territory with trade and distribution prescribed as serious offences.

While developing the criteria, it was acknowledged that priority should be allocated to species/genera that pose a national threat (i.e., the impact will be in most States/Territories, or if limited in distribution, the impact is of national significance). It was also accepted that National prohibition of a species should be supported by well-documented, scientific evidence regarding a species’ history as a pest overseas. These impacts must be substantial, to justify State/Territory expenditure on preventative measures. Furthermore, legislative controls are most appropriate when dealing with species that are likely to be imported deliberately rather than accidentally. Particular attention needs to be given to new garden ornamentals, since this avenue of introduction is the most significant source of additional weed species. Csurhes and Edwards (1998) found that approximately 73% of Australia’s potential environmental weeds are used as garden ornamentals. Similarly, Panetta (1993) found that at least one third of Australia’s noxious weeds are escaped garden ornamentals.

Criteria for development of a Nationally uniform list of restricted potential weeds

1. Species/genera that are either:

- absent from Australia*, or,
- in Australia but not naturalised (eg, in gardens), or,
- naturalised but susceptible to eradication (very small populations).

*may include some species that are prohibited imports under the *Quarantine Act* (State controls need to underpin Commonwealth efforts).

2. Species/genera that have histories as major weeds overseas

3. Species/genera that are likely to be sold as either garden ornamentals, medicinal herbs, fodder plants, curiosities, sources of timber or sources of some other product or amenity.

4. Species/genera that are predicted to have a national impact (eg. impact in several States/Territories, or if impact limited to one State, an impact of National significance).

The four criteria presented above were applied to a list of more than 700 potential weeds of Australia (as listed by Csurhes 1991). The 700+ species were listed as part of a review of Proclamation 86P (Quarantine Act) initiated by AQIS. Proclamation 86P listed plants that were prohibited imports (all plant imports are now the subject of a 'Weed Risk Assessment' protocol). The review was designed to list plant species that had a history as major weeds overseas but were not yet recorded in Australia. The 'top priority' species/genera that satisfied the four selection criteria are presented in Table 1 (below):

Common name/s	Scientific name
broomrape	<i>Orobanche</i> spp. (all species except <i>O. minor</i> and <i>O. cernua</i> var. <i>australiana</i>)
floating water chestnut	<i>Trapa</i> spp.
horsetail	<i>Equisetum</i> spp. (all species)
kochia (or burning bush)	<i>Kochia scoparia</i> (all varieties except subsp. <i>trichophylla</i>)
miconia	<i>Miconia</i> spp.
witchweed	<i>Striga</i> spp. (all non-indigenous species)

Table 1. Potential weed species/genera

PART B: Established weeds

Many of Australia's established weed species have the potential to spread over much larger areas than currently exist. In addition, the sale of commercial cultivars of established weed species might introduce new genetic material of these species and perhaps expand existing genetic variability within species. Future increases in the impacts of these weeds can be limited or stopped by restricting trade and deliberate distribution through uniform declaration. Twenty of the worst introduced invasive plants in Australia have been approved as the initial list of 'Weeds of National Significance' (WONS) (Table 2).

Common name	Scientific name
alligator weed	<i>Alternanthera philoxeroides</i>
athel pine	<i>Tamarix aphylla</i>
bitou bush/ boneseed	<i>Chrysanthemoides monilifera</i>
blackberry (except named cultivars)	<i>Rubus fruticosus</i> agg.
bridal creeper	<i>Asparagus asparagoides</i>
cabomba	<i>Cabomba caroliniana</i>
Chilean needle grass	<i>Nasella neesiana</i>
gorse	<i>Ulex europaeus</i>
hymenachne	<i>Hymenachne amplexicaulis</i>
lantana	<i>Lantana camara</i>
mesquite	<i>Prosopis</i> spp.
mimosa	<i>Mimosa pigra</i>
Parkinsonia	<i>Parkinsonia aculeata</i>
parthenium weed	<i>Parthenium hysterophorus</i>
pond apple	<i>Annona glabra</i>

prickly acacia	<i>Acacia nilotica ssp. indica</i>
rubber vine	<i>Cryptostegia grandiflora</i>
salvinia	<i>Salvinia molesta</i>
serrated tussock	<i>Nasella trichotoma</i>
willows except weeping willows, pussy willow and sterile pussy willow	<i>Salix</i> spp. except <i>S. babylonica</i> , <i>S. X calodendron</i> and <i>S. X reichardtii</i>

Table 2. List of WONS

WONS are weeds that are established in Australia and require a national effort to minimise their impact. An essential component of their management is prevention of spread. Given the realities of today's trade in ornamental plants, where plants are grown in large wholesale nurseries and distributed and promoted nationally, the *ad hoc* declaration of plants on a State-by-State basis is ineffective and needs to be coordinated. By listing high-priority established weeds as prohibited plants throughout Australia, we can avoid the situation where a plant that has been banned in one State can be promoted in national gardening magazines/books and on popular national gardening television programs. By restricting trade (and hence transportation and cultivation), national restrictions will help reduce the rate at which these plant species spread into new areas.

Recommendations:

1. That AWC and NWSEC seek the approval of SCARM through SLWRMC for:
 - (a) the concept of uniform national declaration of weeds to prevent trade and distribution;
 - (b) the declaration of potential weed species listed in Table 1 in every State and Territory to prevent trade and distribution;
 - (c) the declaration of high-priority established weed species listed in Table 2 to prevent trade and distribution, excepting that States/Territories may exempt commercially valuable cultivars of blackberry and lantana that do not contribute to weed impact.

2. That SCARM seek the agreement of SCC and SCF to the concept and lists.

Submitted by AWC Working Group:

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Background information on potential weed species/genera listed in Table 1.

***Equisetum* spp. (horsetails)** – a large genus with weed potential in every State/Territory – notoriously difficult to control once established – listed by Holm *et al.* (1977) as some of the world's worst weeds. To date, only one species, *E. arvense*, has naturalised in Australia. Other species have been detected growing in Botanic Gardens (Csurhes and Edwards 1998) and are cultivated and sold as medicinal herbs in most States. Overseas, some species are sold as garden ornaments. Australian gardening books such as Romanowski (1992) list *Equisetum* as plants suitable for ornamental garden ponds.

***Kochia scoparia* (all varieties except subsp. *trichophylla*)** – subject to an eradication program in WA. Has weed potential throughout southern Australia (WA, SA, Vic, NSW, Tas, Qld). Some varieties are sold as garden ornamentals in Australia and overseas (eg. subsp. *trichophylla* - 'burning bush' or 'summer cyprus').

***Miconia* spp. (especially *M. calvescens*) (miconia)** – *M. calvescens* is a major weed in Tahiti where it dominates two-thirds of the main island and is predicted to cause the extinction of 35-45 endemic plant species. Originally introduced to the botanic gardens of French Polynesia, it spread quickly following dispersal by birds and local nurseries. A similar scenario unfolded in Hawaii. In 1963 it was recorded in the Townsville botanic gardens in north Queensland and by the 1970's was available from nurseries in Queensland, New South Wales and Victoria. Small, naturalised populations have been eliminated in north Queensland (Csurhes 1998). The plant is readily identified by its large leaves (often 1m long) and characteristic venation.

***Orobanche* spp. (except *O. minor* and *O. cernua* var. *australiana*) (broomrapes)** – parasitic weeds of crops and pastures. Several species are notorious weeds throughout the world. Australia is one of the few countries free from these weeds, except *O. minor*). *O. ramosa* (branched broomrape) is currently the target of a \$1.25M control program in South Australia. Overseas, some species of *Orobanche* are promoted as curious ornamentals (advertised on internet). The plant's seeds are dust-like and could be easily smuggled into Australia within envelopes.

***Striga* spp. (all species except native species) (witchweeds)** – parasitic weeds of grain crops. Losses of grain sorghum yields may reach 70% as a result of *Striga* infestation (Bebawi and Farah 1981). Several species are a threat to the entire country. The USA has spent more than \$100M trying to eradicate *S. asiatica* in South Carolina (Sand and Manley 1990). The detection of *S. asiatica* in Australia could jeopardise major export grain markets. Although *S. asiatica* was reported to occur in Australia by Holm *et al.* (1977), this record is either incorrect or the plant has died out (Carter *et al.* 1996). *Striga* is notoriously difficult to control, once widespread. A single plant can produce 50,000 – 500,000 seeds and some infested soils may have 3.5 million seeds per square metre (Holm *et al.* 1977). Might be sold as a curiosity or as an ornamental since the flowers are quite colourful. At least three species, *S. curviflora*, *S. multiflora* and *S. parviflora*, are native to Australia.

***Trapa* spp. (floating water chestnut)** – floating water plants that cause significant problems in the USA, South-east Asia, Africa and Europe. At least four troublesome species: *Trapa bicornis* var. *cochinchinensis*, *T. bispinosa*, *T. maximowiczii* and *T. natans*