



Weed Risk Assessment in Australia

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Australia has unique flora and fauna with a high level of endemism; over 85% for flowering plants, 84% for mammals, 45% for birds and 93% for frogs (Commonwealth of Australia, 1996). Compared to many countries, the natural environment is relatively free of many pests and diseases. This freedom stems from Australia being an island nation, with no land borders, and only recent European settlement (just over 200 years), although there has been human activity over 50,000 years. Nevertheless, 15% of the current Australian vascular flora has been introduced from elsewhere; over 2300 species. The rate of naturalization of plant species is estimated since the 1870s at between 10 and 30 species per year (Groves, 1997). Around 25% of naturalized plant species are significant or potential environmental weeds, and over 370 plant taxa have been under state government legislation (National Weeds Strategy 2003).

Quarantine came into operation in Australia on a federal level with the passing of the Quarantine Act in 1908, overseen by the Australian Quarantine and Inspection Service (AQIS). Similar to most countries, Australia's policy on the operation of plant quarantine traditionally focused on preventing insect or disease entry with plant imports. The only exceptions were a small number of plants known to be major agricultural pests elsewhere and some environmental weeds. Increased concerns about new weeds lead to the implementation of the Hazard system in 1988, the first weed risk assessment (WRA) system (Hazard, 1988). This system was improved in the 1990s, a decade which saw significant changes in Australia's legal obligations with respect to trade and environmental protection (Steinke and Walton, 1999), awareness of weeds (Panetta *et al.*, 1994) and the creation and funding of a National Weeds Strategy (Anon., 1997).

From 7 July 1998, under revised legislation (Quarantine Proclamation 1998), all plants were prohibited from entering Australia until assessed and/or permitted. This was a significant change in policy; from regulation of plants under a small prohibited list to a permitted list approach with a framework of a three-tiered screening process. All plants already growing in Australia were permitted if the species or genus was listed on an existing permitted list. Live plant material, either rooted stock or tissue culture, and seed imports were permitted, with conditions, if listed on the same list (tier 1). The permitted list allowed over 4500 plant taxa. All plants not on

this list, however, were prohibited until they had been assessed for weediness and then a decision was made whether or not to permit them (tier 2).

The objective of using a Weed Risk Assessment (WRA) system is to pre-screen material so that non-invasive plant species can be imported, at the same time as preventing invasive species. This decision was taken in Australia as a review of new naturalized species (Groves, 1997) determined that 65% of plants naturalized over a 25-year period had been deliberately introduced as ornamentals, whereas only 2% were seed contaminants. These plants came almost equally from the Americas, Europe and Africa (approximately 25% each). The WRA system, before adoption, underwent 9 months of stakeholder consultation. The implementation of the WRA system was generally supported during the consultation phase; the nursery industry saw pre-screening as an effective filter to prevent weed entry that may affect their industry (Atkinson, 1999), and most research groups recognized the need for pre or post-screening of plant material.

The AQIS or Pheloung WRA system consists of a questionnaire that evaluates the weed risk using 49 questions about the biology, climatic preferences, reproductive and dispersal methods, and known weed history. Depending on the score generated, importation of the plant is permitted, rejected or prohibited pending 'further evaluation' (tier 3). The system was calibrated using 370 species already introduced to Australia. A more detailed description of the WRA system can be found in Pheloung et al. (1999) and the implementation of the process in Walton (2001).

The cost of the standard weed risk assessment is being borne by the government, not the importer, as it is considered a component of the government's service obligation to the community. The estimated cost of administrating the whole programme is ~\$A 350,000 per annum. On average only 100-200 new species are imported into Australia and require assessment, this is a very small percentage of the total number of importations and species imported per annum. The prohibited species are mostly the result of applications from botanic gardens, specialist plant collectors and research centres/universities.

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References

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Web pages

For further information also see:

Weed Assessment of New Plant Imports at <http://www.affa.gov.au/content/output.cfm?ObjectID=6AC8861C-AC6A-446D-A4BA1730A9B01ADC>

National Weeds Strategy of Australia at <http://www.weeds.org.au/>

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