

Weed Risk Assessment: *Asparagus scandens*

1. Plant Details

Taxonomy: *Asparagus scandens*. Synonym. *Myrsiphyllum scandens*. Family: Asparagaceae.

Common names: Asparagus fern, climbing asparagus, snakefeather, myrsiphyllum.

Origins: Native to South Africa.

Distribution: Naturalised in New Zealand and Australia.

Description: *A. scandens* is a fern-like climber/creeper growing 2-4 m. Stems are much branched, thin and green. Leaves occur in threes at each node, spread in one plane with one longer than the other two. They are very narrow, sometimes curved and 5-15mm long. Flowers are small, whitish to pinkish, 6-petalled and 5-7mm in diameter. The fruit is a round, red berry 5-7mm in diameter. The seed is small, black and 2-3mm diameter. The root mass is a tuberous, perennial, mat-forming rhizome that is extensive. Most of the plant's biomass is in its root system (Blood, 2001).

Biology and ecology:

Habitat. Occurs in a range of Australia native communities including grasslands, heathlands, woodland, dry forest, wet forest, riparian areas, coastal vegetation. It can grow in rocky substrate or on trees or tree ferns as an epiphyte. It tolerates salt, shade, sun, dry or moist conditions and grows on a wide variety of soils including sand (Blood, 2001).

Life cycle. Flowering occurs from late winter to spring. Fruit ripens over summer and germination rates in autumn are high. Growth rates are slow initially and the plant takes several years to reach maturity. Reproduction from the tuberous roots is faster. The rhizome is very long lived (Blood, 2001).

Reproduction and dispersal. Reproduction is from seeds and the tuberous roots. Dispersal is via fruit eating birds and other animals or through movement of contaminated soil, dumped garden waste, vehicles or equipment. The plant is occasionally sold in nurseries or market stalls (Blood, 2001).

Hybridisation. Limited information

Competition. *A. scandens* is a highly competitive plant due to its mat forming rhizome and strangling growth habit. The root system competes effectively for nutrients and water whilst the twining stems, which become strong and rigid with maturity, can kill herbaceous plants and small woody plants.

Harmful properties: None known.

Economic benefit: *A. scandens* has little economic benefit. It is no longer commonly sold as an ornamental plant.

2. Weed Risk

World weed status

A. scandens is a weed in a number of temperate areas. It is prohibited from sale in New Zealand.

Australian weed status

A. scandens is naturalised in the New South Wales, South Australia, Victoria and Tasmania. It is not regulated in any State or Territory and it is permitted entry to Australia (Weeds Australia database). Groves et al. (2003) list it as a major environmental weed in 4 or more Australian locations.

Weed potential in Tasmania.

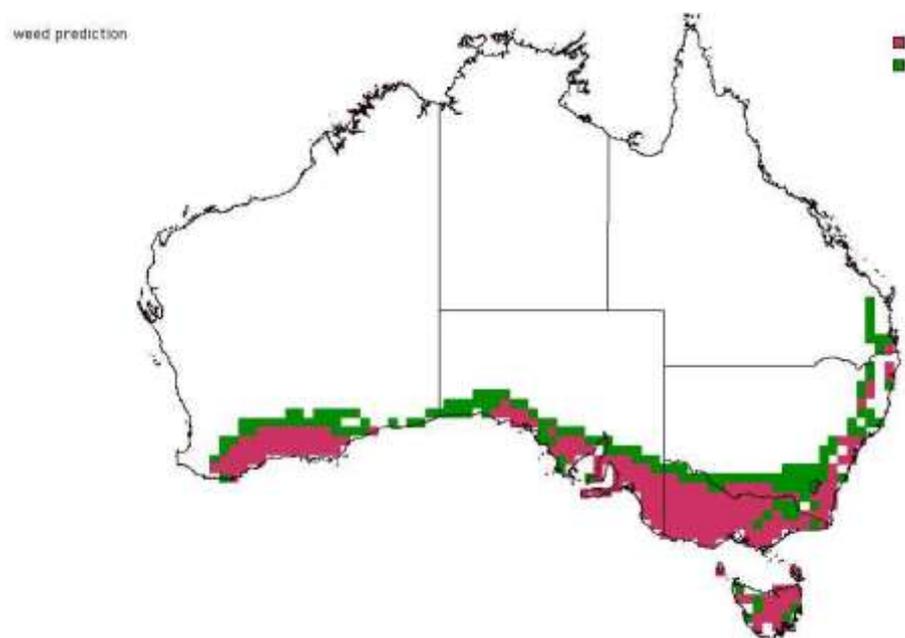
A. scandens is naturalised in Tasmania. Significant populations occur in the State's north east at Bridport and on King Island. The plant is not commonly sold in Tasmania (check hybrids).

Climate matching indicates the plant is likely to grow very well in a range of Tasmanian natural environments. The following analyses indicate the weed potential of *A. scandens* in Tasmania is significant.

Weed risk assessment

Weed risk assessment undertaken by DPIWE involves use of a point scoring system devised by Pheloung (1996). *A. scandens* scores 18 on a scale that is positively correlated to weediness. The nominal score for rejection of a plant on this scale is 7 or greater (see Appendix 1 for risk assessment scoring).

Potential distribution of
Asparagus scandens in
Australia using CLIMATE
(Pheloung, 1995)



3. Weed Impact Assessment

Weed impact assessment is based on the DPIWE scoring system designed for that purpose. *A. scandens* scores xx points on a scale where 4 points or more indicates a plant has significant potential impact. The impact scoring system requires that questions be answered with a particular land use and density in mind. *A. scandens* was assessed for its potential impacts upon natural environments at moderate to high densities.

Economic impact. The economic impact of *A. scandens* in Tasmania could manifest in relation to ecotourism values. Natural areas infested with *A. scandens* are species poor. The plant can also provide an effective barrier to movement of walkers and birds.

Environmental impact: *A. scandens* is described as invasive in natural environments due to its broad environmental tolerance, its capacity to persist via long-lived rhizomes, its creeping, climbing habit and its strong competitive ability. It appears to have significant potential to replace native species in a range of Tasmanian native plant communities and would presumably also alter animal feeding patterns due to the abundance of fruit produced during summer.

Social impact. *A. scandens* is unlikely to have significant social impacts in Tasmania although it may render certain natural areas less useful for recreation or tourism.

4. Management Feasibility.

Weed eradication assessment is based on the DPIWE scoring system designed for that purpose. *A. scandens* scores 9 points on a scale where 6 points or more indicates there is potential for the plant to be eradicated successfully from the entire state.

Current distribution: *A. scandens* occurs in the state's north east at Bridport, on King Island in the north west and at Koonya on the Tasman Peninsula in the south. The distribution of this plant across the state has never been thoroughly investigated and formal survey work is recommended.

At present there are between 5 and 20 known infestations in Tasmania.

Detectability: The plant is conspicuous, even at low densities due to its distinctive ferny appearance, climbing habit and bright showy red berries.

Control Options: Control of *A. scandens* with a metsulfuron/glyphosate/Pulse mix has been used to good effect in Tasmania, mostly in situations where the plant is invading natural areas.

Chance of Reinvasion: The extent of ornamental planting of *A. scandens* is not known but could be substantial therefore, even if the sale of this plant is prohibited, re-invasion is possible. The limited distribution of the plant at this time however means targeted awareness programs around affected areas may help encourage and facilitate compliance by people who harbour this plant in their gardens.

Persistence: The main challenge to eradication of this weed from Tasmania is its long lived tubers. This has implications for resource requirements for both the state and affected landowners.

Compliance Issues or Conflicts of Interest: The most important compliance issue is likely to arise in relation to people who value this plant for its ornamental appeal and who therefore will be

reluctant to remove it from their gardens. There may also be a conflict of interest with people wishing to sell the plant. Both situations can be addressed by highlighting the range of alternatives available.

Eradication Feasibility: Compliance and other issues notwithstanding, the eradication of *A. scandens* at this time from non- garden situations appears both achievable and desirable.

5. Declaration Recommendation.

A. scandens appears to have potential to establish, reach moderate to high densities and cause environmental significant harm in certain vegetation communities in Tasmania. Therefore it should be nominated for declaration under the *Weed Management Act 1999*. This will support removal of the plant from trade and timely eradication of existing infestations.

6. References.

Blood, K., 2001, *Environmental weeds. A field guide for SE Australia*. CH Jerram, Science Publishers, Mt Waverley, Victoria.

Groves, R.H. (Convenor), Hosking, J.R., Batianoff, G.N., Cooke, D.A., Cowie, I.D., Johnson, R.W., Keighery, G.J., Lepschi, B.J., Mitchell, A.A., Moerkerk, M., Randall, R.P., Rozefelds, A.C., Walsh, N.G. and Waterhouse, B.M., 2003, *Weed categories for natural and agricultural ecosystem management*. Bureau of Rural Sciences, Canberra.

Pheloung, P.C., 1995, *Determining the weed potential of new plant introductions to Australia*. A report commissioned by the Australian Weeds Committee. Agriculture Western Australia.

Pheloung, P.C., 1996, *Climate. A system to predict the distribution of an organism based on climate preference*. Agriculture Western Australia.

Plants for a Future Database at www.sca.leeds.ac.uk

USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN), online database at www.ars.grin.gov/cgi-bin/ngps/html, National Germplasm Resources Laboratory, Beltsville, Maryland.

Weeds Australia Database at www.weeds.org.au