

Family: *Fabaceae*

Taxon: *Acacia dealbata*

Synonym: *Acacia decurrens* var. *dealbata* (Link) F. Mue **Common Name:** Mimosa
Racosperma dealbatum (Link) Pedley Silver wattle

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation:	H(HPWRA)
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score	22
101	Is the species highly domesticated?		y=-3, n=0		n
102	Has the species become naturalized where grown?		y=1, n=-1		
103	Does the species have weedy races?		y=1, n=-1		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)		Intermediate
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)		High
203	Broad climate suitability (environmental versatility)		y=1, n=0		y
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0		y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0		y
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205		y
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)		y
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)		y
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)		y
305	Congeneric weed		n=0, y = 1*multiplier (see Appendix 2)		y
401	Produces spines, thorns or burrs		y=1, n=0		n
402	Allelopathic		y=1, n=0		
403	Parasitic		y=1, n=0		n
404	Unpalatable to grazing animals		y=1, n=-1		n
405	Toxic to animals		y=1, n=0		n
406	Host for recognized pests and pathogens		y=1, n=0		y
407	Causes allergies or is otherwise toxic to humans		y=1, n=0		
408	Creates a fire hazard in natural ecosystems		y=1, n=0		
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0		y
411	Climbing or smothering growth habit		y=1, n=0		n

412	Forms dense thickets	y=1, n=0	y
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	y
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	y
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>3
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	y
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	y
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	y
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 22

Supporting Data:

101	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Is the species highly domesticated? No] No evidence
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Species suited to tropical or subtropical climate(s) 1-Intermediate] "In Australia, <i>A. dealbata</i> has a natural distribution mainly on the tablelands and in the foothills of the Australian Alps from northern New South Wales to mid-western Victoria, at altitudes of 350-1000 m. In Tasmania it grows between 50-600 m elevation (Boland et al., 1984). The main latitudinal distribution is 33-38°S and its complete range between 29 and 43°S."
202	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Quality of climate match data 2-High]
203	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Broad climate suitability (environmental versatility)? Yes] "Climatic amplitude (estimates) - Altitude range: 0 - 1500 m - Mean annual rainfall: 300 - 1830 mm - Rainfall regime: summer; winter; uniform - Mean annual temperature: 10 - 16°C - Mean maximum temperature of hottest month: 20 - 28°C - Mean minimum temperature of coldest month: 0 - 2°C - Absolute minimum temperature: > -8°C"
204	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Native or naturalized in regions with tropical or subtropical climates? Yes] " <i>A. dealbata</i> has become established along highways and drainage lines in Chile and it has become naturalized in the Nilgiri and Palni Hills in India (Troup, 1921)."
205	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Does the species have a history of repeated introductions outside its natural range? Yes] " <i>A. dealbata</i> has been introduced into South Australia and southern Queensland where it has now become naturalized. It has been introduced into many countries including Chile, China, France (and other parts of southern Europe), India, Japan, Kenya, Nepal, New Zealand, North Africa, South Africa, Sri Lanka, Uganda, West Africa, Zambia and Zimbabwe."
205	2012. Smithsonian Institution. Flora of the Hawaiian Islands - Hawaiian Flora Specimen Query Results - <i>Acacia dealbata</i> . http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/specres2.cfm	[Does the species have a history of repeated introductions outside its natural range? Yes] " <i>Acacia dealbata</i> : Collected by: Little, Jr., E.L. No. 31005 Collection Date: 5 Aug 1976 Hawaiian Islands, Oahu, SE Oahu, Tantalus Dr., near Honolulu.. Alt. 152-305 m. Barcode: 00584577 US Sheet Number: 03277676"
301	2004. Maslin, B.R./McDonald, M.W.. <i>AcaciaSearch</i> - Evaluation of <i>Acacia</i> as a woody crop option for southern Australia. RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Naturalized beyond native range? Yes] "Within Australia <i>A. dealbata</i> has become naturalized in parts of southwest Western Australia and southern South Australia and overseas in parts of South Africa (Ross 1975 and Henderson 2001), New Zealand (Pollock et al. 1986) and India (Troup 1921). In South Africa it is a Declared Weed in the West Cape Province and a Declared Invader (category 2) elsewhere in the country. Attempts at control of <i>A. dealbata</i> in South Africa have included the use of herbicides; also, a seed feeding weevil, <i>Melanterius</i> sp., is currently under investigation as a biocontrol agent of this species (see Dennill et al. 1999). On account of its strong suckering propensity <i>A. dealbata</i> is frequently difficult to eradicate when clearing (Anderson 1968). It is often seen in dense stands on recently disturbed land (Simmons 1988)."
301	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Naturalized beyond native range? Yes] "It has become naturalized in South Australia and southeastern Queensland." ... "It has become naturalized in parts of New Zealand (Pollock et al., 1986)." ... " <i>A. dealbata</i> has become established along highways and drainage lines in Chile and it has become naturalized in the Nilgiri and Palni Hills in India (Troup, 1921)."
301	2010. Lorenzo, P./onzalez, L./Reigosa, G.M.J.. The genus <i>Acacia</i> as invader: the characteristic case of <i>Acacia dealbata</i> Link in Europe. <i>Annals of Forest Science</i> . 67(1): DOI: 10.1051/forest/2009082.	[Naturalized beyond native range? Yes] " <i>A. dealbata</i> was first introduced in Europe towards 1800 (Sheppard et al., 2006). It was planted as an ornamental in the 19th century in many areas of southern Europe, which offered favorable climates for its development, with sufficient sun exposure and little frosts. At present, it is widely naturalized in southwest Europe (Sheppard et al., 2006; Tutin et al., 2001) (Fig. 1)."
302	2011. Le Maitre, D.C./Gaertner, M./Marchante, E. et al.. Impacts of invasive Australian acacias: implications for management and restoration. <i>Diversity and Distributions</i> . 17: 1015–1029.	[Garden/amenity/disturbance weed? Yes] " <i>Acacia dealbata</i> was introduced to Chile for ornamental purposes, and invasions currently extend from Los Lagos in the south to Valparaiso in the north. The species occurs in riparian habitats, roadsides and heavily disturbed areas (Pauchard & Maheu-Giroux, 2007)." ... "Disturbance (such as fire or clear cutting) depletes native seed banks and reduces native species cover, opening up space that <i>A. dealbata</i> rapidly colonizes."

303	2010. Lorenzo, P./onzalez, L./Reigosa, G.M.J.. The genus <i>Acacia</i> as invader: the characteristic case of <i>Acacia dealbata</i> Link in Europe. <i>Annals of Forest Science</i> . 67(1): DOI: 10.1051/forest/2009082.	[Agricultural/forestry/horticultural weed? Yes] " <i>Acacia dealbata</i> often invades areas under intensive agricultural use and further away from the sea than the other <i>Acacia</i> species present in these regions (Aguiar et al., 2001)."
304	2003. Weber, E.. <i>Invasive Plant Species of the World. A Reference Guide to Environmental Weeds</i> . CABI Publishing, Wallingford, UK	[Environmental weed? Yes] "It forms dense thickets that suppress native vegetation, disrupt water flow and increase erosion along streambanks."
304	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Environmental weed? Yes] " <i>A. dealbata</i> was probably introduced into South Africa after being confused with black wattle (<i>A. mearnsii</i>). Because of its fast growth, tolerance of severe frosts and usefulness for poles and firewood, it was planted extensively near the Drakensberg and the mistbelt regions of Natal (Campbell et al., 1990). In these areas and in the Orange Free State it is seriously invasive (Whibley and Symon, 1992)."
304	2007. Coetzee, B.W.T./van Rensburg B.J./Robertson, M.P.. Invasion of grasslands by silver wattle, <i>Acacia dealbata</i> (Mimosaceae), alters beetle (Coleoptera) assemblage structure. <i>African Entomology</i> . 15(2): 328-339.	[Environmental weed? Yes] "Alien plants are rapidly invading natural areas in South Africa but their impacts on biodiversity, particularly on arthropods, are poorly understood." ... "Clearly, <i>A. dealbata</i> invasion of grasslands has substantial negative impacts on Coleoptera diversity."
304	2010. Lorenzo, P./Rodríguez-Echeverría, S./González, L./Freitas, H.. Effect of invasive <i>Acacia dealbata</i> Link on soil microorganisms as determined by PCR-DGGE. <i>Applied Soil Ecology</i> . 44: 245–251.	[Environmental weed? Yes] "The invasion by <i>A. dealbata</i> consistently increased soil N, C, organic matter and exchangeable P content in the three studied ecosystems. A clear effect of the invasion on the overall structure of microorganism communities was only observed in the shrubland where soil fungal communities in the invaded and transition areas clustered together and apart from the native soil. Significant differences in soil microorganisms richness and diversity between invaded and not invaded soils were only found in the grassland. Grassland invasion by <i>A. dealbata</i> lead to a significant increase of bacterial richness and to a significant reduction in fungal richness and diversity. Our results show that although the changes on soil chemistry due to <i>A. dealbata</i> invasion are consistent among the studied ecosystems, the effect on soil microorganisms depends on the ecosystem type affected by the invasion."
304	2011. Le Maitre, D.C./Gaertner, M./Marchante, E. et al.. Impacts of invasive Australian acacias: implications for management and restoration. <i>Diversity and Distributions</i> . 17: 1015–1029.	[Environmental weed? Yes] " <i>Acacia dealbata</i> is particularly invasive in Chile because of its phenotypic plasticity; its high capacity for resprouting after fire and clear cutting; its allelopathic properties; and its rapid response to anthropogenic disturbances (Fuentes-Ramírez et al., 2011). The species is heavily used for firewood when near human settlements, but clear cutting and fire promote resprouting, increasing the rate of expansion across the landscape. Forestry companies have become aware of the threat this species poses to protection zones in their plantations and are considering strategies to reduce its dispersal and restore invaded areas. However, there is still no unified effort to restore invaded areas, and impoverished rural communities still consider this species an important resource."

305	2011. Le Maitre, D.C./Gaertner, M./Marchante, E. et al.. Impacts of invasive Australian acacias: implications for management and restoration. Diversity and Distributions. 17: 1015–1029.	[Congeneric weed? Yes] "Aim The biophysical impacts of invasive Australian acacias and their effects on ecosystem services are explored and used to develop a framework for improved restoration practices. Location South Africa, Portugal and Chile. Methods A conceptual model of ecosystem responses to the increasing severity (density and duration) of invasions was developed from the literature and our knowledge of how these impacts affect options for restoration. Case studies are used to identify similarities and differences between three regions severely affected by invasions of Australian acacias: <i>Acacia dealbata</i> in Chile, <i>Acacia longifolia</i> in Portugal and <i>Acacia saligna</i> in South Africa. Results Australian acacias have a wide range of impacts on ecosystems that increase with time and disturbance, transform ecosystems and alter and reduce ecosystem service delivery. A shared trait is the accumulation of massive seed banks, which enables them to become dominant after disturbances. Ecosystem trajectories and recovery potential suggest that there are important thresholds in ecosystem state and resilience. When these are crossed, options for restoration are radically altered; in many cases, autogenic (self-driven and self-sustaining) recovery to a pre-invasion condition is inhibited, necessitating active intervention to restore composition and function. Main conclusions The conceptual model demonstrates the degree, nature and reversibility of ecosystem degradation and identifies key actions needed to restore ecosystems to desired states. Control and restoration operations, particularly active restoration, require substantial short- to medium-term investments, which can reduce losses of biodiversity and ecosystem services, and the costs to society in the long term. Increasing restoration effectiveness will require further research into linkages between impacts and restoration. This research should involve scientists, practitioners and managers engaged in invasive plant control and restoration programmes, together with society as both the investors in, and beneficiaries of, more effective restoration."
401	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Produces spines, thorns or burrs? No] " <i>A. dealbata</i> is a large shrub to tall tree with an erect stem usually ranging in height from 2 - 15 m, but attaining 30 m in parts of Tasmania and Victoria. It often is seen as a spreading shrub but where space allows it has a rounded crown. Bark is brown grey to dark grey, often mottled white (due to lichen growth). Young stems and newer growth are smoother and lighter in colour. " ..." <i>A. dealbata</i> has silvery green to dark green densely hairy bipinnate foliage 6-11 cm long. It has 7-26 pairs of pinnae which are 15-30 mm in length. Pinnules vary from 20-50 pairs, are linear-oblong and are 2-5mm long and 0.4-0.7mm wide. The glands are prominent with one on the petiole and a raised jugary gland at the junction between each pair of pinnae (Tame, 1992). <i>A. dealbata</i> exhibits a diurnal rhythm of pinnule movement in which the leaves open by day and close by night (Boland, 1987)."
402	2008. Lorenzo, P./Pazos-Malvido, E./Gonzalez, L./Reigosa, M.J. . Allelopathic interference of invasive <i>Acacia dealbata</i> : Physiological effects. Allelopathy Journal. 22(2): 453-462.	[Allelopathic? Potentially Yes] "The allelopathic potentials of throughfall (rain passing through the canopy) and macerate (apical branches mixed with distilled water) leachates of <i>Acacia dealbata</i> grove during the flowering were studied. The test plants were corn (<i>Zea mays</i>) and 4 plant spp. (<i>Dicranum</i> sp. <i>Hedera hibernica</i> , <i>Leucobryum</i> sp, and <i>Dactylis glomerata</i>) present both inside and outside the grove, while <i>Leucobryum</i> sp. and <i>Dactylis glomerata</i> were present only outside the grove. <i>A. dealbata</i> leachates showed allelopathic interference to test species. Although the germination of corn was inhibited by throughfall and macerate leachates. But the latter was more inhibitory. Besides, leachates also inhibited the photosynthesis of corn. The macerate leachates also stimulated the respiration of species located outside the <i>A. dealbata</i> grove. This suggested that <i>A. dealbata</i> call interact with native species through allelopathic interference and may be responsible for biodiversity loss in introduced ranges."
402	2010. Lorenzo, P./Gonzalez, L./Reigosa, G.M.J.. The genus <i>Acacia</i> as invader: the characteristic case of <i>Acacia dealbata</i> Link in Europe. Annals of Forest Science. 67(1): DOI: 10.1051/forest/2009082.	[Allelopathic? Possibly Yes] "However, most experiments researching <i>A. dealbata</i> allelopathy have been laboratory experiments (Lorenzo et al., 2008) and rather little is known about allelopathic effects of <i>Acacia</i> in the field."
403	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Parasitic? No] " <i>A. dealbata</i> is a large shrub to tall tree with an erect stem usually ranging in height from 2 - 15 m, but attaining 30 m in parts of Tasmania and Victoria."
404	2004. Maslin, B.R./McDonald, M.W.. <i>AcaciaSearch</i> - Evaluation of <i>Acacia</i> as a woody crop option for southern Australia. RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Unpalatable to grazing animals? No] "The species is not especially known in Australia for its animal fodder value, although it is reportedly used for this purpose in the Nilgiri Hills of southern India (Doran & Turnbull 1997)."

404	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Unpalatable to grazing animals? No] "A dealbata has the advantage of having less browsing pressure from native animals, at least in Tasmania, than other plantation species (Kube et al., 1997)." [Apparently still palatable]
405	2004. Maslin, B.R./McDonald, M.W.. AcaciaSearch - Evaluation of Acacia as a woody crop option for southern Australia. RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Toxic to animals? No] "Fodder The species is not especially known in Australia for its animal fodder value, although it is reportedly used for this purpose in the Nilgiri Hills of southern India (Doran & Turnbull 1997). Wildlife value Acacia dealbata is an important source of winter carbohydrate for petaurid arboreal marsupials including Leadbeater's possum (<i>Gymnobelideus leadbeateri</i>), the sugar glider (<i>Petaurus breviceps</i>), the squirrel glider (<i>Petaurus norfolcensis</i>), the mahogany glider (<i>Petaurus norfolcensis</i>) and the yellow-bellied glider (<i>Petaurus australis</i>) (Smith 1982, Henry 1985, Menkhorst et al. 1988). Smith & Lindenmayer (1992) found that Acacia gum may contribute up to 80% of the Leadbeater's possum's daily energy requirements. Lindenmayer et al. (1994) showed that the sugar content of <i>A. dealbata</i> gum was 48.6%."
406	2004. Maslin, B.R./McDonald, M.W.. AcaciaSearch - Evaluation of Acacia as a woody crop option for southern Australia. RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Host for recognized pests and pathogens? Yes] "Lee (1993) provides a summary list of diseases recorded on <i>A. dealbata</i> in several parts of the world. Various fungi have been reported as causing serious losses to <i>A. dealbata</i> stock in the nursery (Ito & Shibukawa 1956 and Terashita 1962). The species is subject to fireblight beetle (<i>Pyrgoides orphana</i>) in Australia (Simpfendorfer 1992), a defoliator which limits its use as a plantation species. The sapwood is susceptible to <i>Lyctus</i> attack. The above information is taken from Doran & Turnbull (1997); see CAB International (2000) for further details."
407	2002. Seigler, D.S.. Economic potential from Western Australian Acacia species: secondary plant products. Conservation Science Western Australia. 4(3): 109-116.	[Causes allergies or is otherwise toxic to humans? No evidence] "The seeds of a number of Australian wattle species were used by Aboriginal people as sources of protein and, to a lesser extent, oils (Anonymous 2000). Among those commonly eaten in eastern Australia were <i>Acacia dealbata</i> , <i>A. longifolia</i> subsp. <i>sophorae</i> , <i>A. pycnantha</i> , <i>A. stenophylla</i> and <i>A. verniciflua</i> (Anonymous 2000)."
407	2004. Maslin, B.R./McDonald, M.W.. AcaciaSearch - Evaluation of Acacia as a woody crop option for southern Australia. RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Causes allergies or is otherwise toxic to humans? No evidence] "In southern Europe <i>A. dealbata</i> is known as 'mimosa', and here it is also used commercially in the cut flower trade (Boland et al. 1984). The flowers are used for perfume production and French manufacturers recognise the extract for its ability as a blender and 'smoothing agent' for synthetics and as a fixative in high grade perfume (Poucher 1984, Boland 1987). Details of the industry are given by Guenther (1952). Wool may be dyed with <i>A. dealbata</i> leaves to yellow-fawn or green depending on the mordants used (Martin 1974). Aborigines reputedly used this species for making boomerangs, as a food (the gum) and for medicinal purposes (bark infusions in hot water as a remedy for indigestion) (Stelling 1998). The gum is highly soluble in water and was reputedly dissolved in boiling milk and taken for dysentery and diarrhoea, with good results, by European settlers (Stelling 1998)."
407	2006. DAISE. Species Factsheet - Acacia dealbata. http://www.europe-alien.org/pdf/Acacia_dealbata.pdf	[Causes allergies or is otherwise toxic to humans? Potentially] "Health and Social Impact Allergies to its pollen are frequently reported."
407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No] No evidence of toxicity
407	2011. Davanzo, F. et al.. Plant Poisoning: Increasing Relevance, a Problem of Public Health and Education. North-western Italy, Piedmont region. Journal of Pharmaceutical Sciences and Research. 3(7): 1338-1343.	[Causes allergies or is otherwise toxic to humans? No] No evidence found in this study, which included <i>A. dealbata</i>
408	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Creates a fire hazard in natural ecosystems? Potentially] "It forms dense thickets that suppress native vegetation, disrupt water flow and increase erosion along streambanks." [Thicket formation could increase fire risk in areas, but not listed among its detrimental impacts]
408	2005. Pyrke, A.F./Marsden-Smedley, J.B.. Fire-attributes categories, fire sensitivity, and flammability of Tasmanian vegetation communities. Tasforests. 16: 35-46.	[Creates a fire hazard in natural ecosystems? Possibly] "Table 1. Fire-attributes category, fire sensitivity and flammability codes for TASVEG communities, listed in decreasing order of fire sensitivity." ... [<i>Acacia dealbata</i> - FI = flammability = M - moderate]
409	1999. Hunt, M.A./Unwin, G.L./Beadle, C.L.. Effects of naturally regenerated <i>Acacia dealbata</i> on the productivity of a <i>Eucalyptus nitens</i> plantation in Tasmania, Australia. Forest Ecology and Management. 117: 75-85.	[Is a shade tolerant plant at some stage of its life cycle? Possibly Yes] "Whilst the presence of <i>A. dealbata</i> is a good indicator of site quality (Keenan and Candy, 1983), early competition (Cunningham and Cremer, 1965) and the ability of the species to persist in the understorey (Adams and Attiwill, 1984), may have significant consequences for forest production in the short term." [Persists in understorey, presumably shady]

409	2011. Fuentes-Ramirez, A./Pauchard, A./Garcia, R.A./Cavieres, L.A.. Survival and growth of <i>Acacia dealbata</i> vs. native trees across an invasion front in south-central Chile. <i>Forest Ecology and Management</i> . 261: 1003-1009.	[Is a shade tolerant plant at some stage of its life cycle? Possibly No] "While <i>C. alba</i> , a shade-tolerant species, grows better under the closed canopy of <i>Acacia</i> stands, <i>A. dealbata</i> , a shade-intolerant species, better perform under the open canopy of native forest."
410	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Tolerates a wide range of soil conditions? Yes] " <i>A. dealbata</i> occurs within forests and woodlands on a variety of soil types in cool to warm sub-humid climatic zones." ... "Soil types range from deep and fertile forest podsolics, clays and gravelly clays of moderate drainage to well-drained stony slopes, volcanic brown earths and lateritic krasnozems. Substrates include basalt, granite and sandstone (Doran and Turnbull, 1997)."
411	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Climbing or smothering growth habit? No] " <i>A. dealbata</i> is a large shrub to tall tree with an erect stem usually ranging in height from 2 - 15 m, but attaining 30 m in parts of Tasmania and Victoria."
412	2003. Weber, E.. <i>Invasive Plant Species of the World. A Reference Guide to Environmental Weeds</i> . CABI Publishing, Wallingford, UK	[Forms dense thickets? Yes] "It forms dense thickets that suppress native vegetation, disrupt water flow and increase erosion along streambanks."
412	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Forms dense thickets? Dominant, but no evidence of thicket formation] "It is often a dominant shrub in eucalypt forests and is a small tree in clearings or on disturbed sites where it regenerates vigorously. On better sites it is found growing with <i>Eucalyptus fastigata</i> , <i>E. regnans</i> and <i>E. viminalis</i> while on drier sites and at higher altitudes it is found with <i>E. radiata</i> subsp. <i>robertsonii</i> , <i>E. dives</i> and <i>E. nortonii</i> (Boland et al., 1984)."
412	2010. Lorenzo, P./onzalez, L./Reigosa, G.M.J.. The genus <i>Acacia</i> as invader: the characteristic case of <i>Acacia dealbata</i> Link in Europe. <i>Annals of Forest Science</i> . 67(1): DOI: 10.1051/forest/2009082.	[Forms dense thickets? Yes] "It forms dense stands that choke the natural vegetation."
412	2010. Lorenzo, P./Rodríguez-Echeverría, S./González, L./Freitas, H.. Effect of invasive <i>Acacia dealbata</i> Link on soil microorganisms as determined by PCR-DGGE. <i>Applied Soil Ecology</i> . 44: 245-251.	[Forms dense thickets? Yes] " <i>Acacia dealbata</i> Link is an Australian woody legume that has become a serious environmental problem in Northwest Spain where it forms dense monospecific patches modifying the structure of different native ecosystems and threatening native aboveground biodiversity"
501	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Aquatic? No] " <i>A. dealbata</i> is a large shrub to tall tree with an erect stem usually ranging in height from 2 - 15 m, but attaining 30 m in parts of Tasmania and Victoria." [Terrestrial]
502	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Grass? No] Fabaceae
503	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Nitrogen fixing woody plant? Yes] " It is a fast growing shrub or tree suited to cool climates and its roots have the ability to fix nitrogen."
504	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] " <i>A. dealbata</i> is a large shrub to tall tree with an erect stem usually ranging in height from 2 - 15 m, but attaining 30 m in parts of Tasmania and Victoria."
601	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Evidence of substantial reproductive failure in native habitat? No] "In Australia flowering occurs in winter to spring (July to November) (Morrison and Davies, 1991). The period between flowering and seed maturation is 5-6 months (Boland, 1987)."
602	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Produces viable seed? Yes] "Pods are bluish glaucous, oblong in shape 58-80 mm long and 8-12 mm wide (Tame, 1992). Margins are slightly thicker and raised and irregular which constricts between seeds. The seed is black and oblong 4-6 x 2-3 mm, arranged longitudinally in the pod with a short seed stalk, has a cap like aril (Simmons, 1988). Seed is shed and remains viable in the ground for many years." ... "Propagation of <i>A. dealbata</i> is by seed. Most commonly seedcoat dormancy is broken by immersing the seed in boiling water for 1 minute, but scarification of the seed is also an option. Germination rate averages 74% and there are approximately 53,400 viable seeds/kg (Doran and Turnbull, 1997)."
603	2004. Maslin, B.R./McDonald, M.W.. <i>AcaciaSearch - Evaluation of Acacia as a woody crop option for southern Australia</i> . RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Hybridizes naturally? Yes] " <i>Acacia dealbata</i> occasionally hybridizes with <i>A. baileyana</i> (Tindale & Kodala 2001) and possibly also with <i>A. pataczekii</i> (Maslin 2001); it is also recorded as hybridizing with <i>A. mearnsii</i> in cultivation in South Africa (see <i>A. mearnsii</i> for references). A European garden hybrid involving <i>A. dealbata</i> and <i>A. podalyriifolia</i> has been described as <i>A. x hanburyana</i> (Maslin 2001)."

603	2010. Lorenzo, P./onzalez, L./Reigosa, G.M.J.. The genus <i>Acacia</i> as invader: the characteristic case of <i>Acacia dealbata</i> Link in Europe. <i>Annals of Forest Science</i> . 67(1): DOI: 10.1051/forest/2009082.	[Hybridizes naturally? Yes] "Furthermore, when <i>A. dealbata</i> arrives in new environments, it can cross with other wattles (Sheppard et al., 2006), creating novel hybrids which may colonize new environments."
604	2011. Gibson, M.R./Richardson, D.M./Marchante, E./Marchante, H. et al.. Reproductive biology of Australian acacias: important mediator of invasiveness?. <i>Diversity and Distributions</i> . 17(5): 911–933.	[Self-compatible or apomictic? Possibly] "Partial self-compatibility and intraspecific variation in self-compatibility seem relatively common in Australian <i>Acacia</i> species (Philp & Sherry, 1946; Moffett & Nixon, 1974) with some ability to reproduce by selfing known for six species, five of which are invasive (see Table S1: <i>Acacia dealbata</i> , <i>A. decurrens</i> , <i>A. mearnsii</i> , <i>A. paradoxa</i> , <i>A. saligna</i>) (J.G. Rodger, unpublished data; George et al., 2008; Millar et al., 2011)."
605	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Requires specialist pollinators? No] "Flowers are normally golden yellow but sometimes are lemon or pale yellow in colour (Simmons, 1988) with 25-35 flowers in globular heads on peduncles ca. 6 mm long found in the terminal, axillary racemes and panicles." [Morphology suggests no]
605	2010. Lorenzo, P./onzalez, L./Reigosa, G.M.J.. The genus <i>Acacia</i> as invader: the characteristic case of <i>Acacia dealbata</i> Link in Europe. <i>Annals of Forest Science</i> . 67(1): DOI: 10.1051/forest/2009082.	[Requires specialist pollinators? No] "The open structure of the <i>Acacia</i> inflorescence makes it accessible to a wide diversity of visitors. Stone et al. (2003) indicate that <i>Acacia</i> flower visitors can be divided into the following three trophic groups: specialist pollen and flower feeders (bees, beetles, many true flies), specialist nectar feeders (birds, butterflies and bee flies [Bombyliidae]), and opportunist foragers (flies, ants and wasps). Despite the large number of visitors it is possible that only a subset of them are effective pollinators (Stone et al., 2003)." ... "Certainly, the flowers of <i>A. dealbata</i> do not show complex morphology restricting access to a small group of specialized pollinators."
606	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Reproduction by vegetative fragmentation? Yes] "Its main disadvantage is that it is a pioneer species which readily forms root suckers and produces prolific quantities of seed making it a weed in some areas where it has been introduced, such as in parts of South Africa and India." ... " <i>A. dealbata</i> suckers extensively from roots and coppices easily from wounded stumps (Campbell et al., 1990)."
606	2010. Lorenzo, P./onzalez, L./Reigosa, G.M.J.. The genus <i>Acacia</i> as invader: the characteristic case of <i>Acacia dealbata</i> Link in Europe. <i>Annals of Forest Science</i> . 67(1): DOI: 10.1051/forest/2009082.	[Reproduction by vegetative fragmentation? Yes] " <i>A. dealbata</i> reproduces by seeds but it can spread by rhizomes and readily sprouts after cutting or damage. It is also able to counteract reduced reproductive output by vegetative persistence (Wilcock and Neiland, 2002),..."
607	1990. Gowers, L.J.. Native trees and shrubs of the Ballarat region. Dept. of Conservation & Environment, Ballarat, Australia	[Minimum generative time (years)? 4+] "Plants mature early, setting seed at 4 to 5 years"
607	1999. Hunt, M.A./Unwin, G.L./Beadle, C.L.. Effects of naturally regenerated <i>Acacia dealbata</i> on the productivity of a <i>Eucalyptus nitens</i> plantation in Tasmania, Australia. <i>Forest Ecology and Management</i> . 117: 75-85.	[Minimum generative time (years)? 5+] "... <i>A. dealbata</i> regrowth was observed to set seed in this study at age five years,..."
607	2004. Maslin, B.R./McDonald, M.W.. <i>AcaciaSearch</i> - Evaluation of <i>Acacia</i> as a woody crop option for southern Australia. RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Minimum generative time (years)? 4+] "According to Stelling (1998) <i>A. dealbata</i> produces large seed crops every 2–3 years and the plants mature early with seed set at 4–5 years of age."
701	2011. Gibson, M.R./Richardson, D.M./Marchante, E./Marchante, H. et al.. Reproductive biology of Australian acacias: important mediator of invasiveness?. <i>Diversity and Distributions</i> . 17(5): 911–933.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "Movement of soil for road building is also a major dispersal route of <i>A. dealbata</i> and <i>A. longifolia</i> in Portugal (H. Marchante, unpublished data)."
702	2004. Maslin, B.R./McDonald, M.W.. <i>AcaciaSearch</i> - Evaluation of <i>Acacia</i> as a woody crop option for southern Australia. RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Propagules dispersed intentionally by people? Yes] " <i>Acacia dealbata</i> is widely grown as an ornamental within Australia and overseas on account of its attractive silvery foliage and its prolific flowers (but suckering may cause problems in cultivation)."
702	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Propagules dispersed intentionally by people? Yes] " <i>A. dealbata</i> has a moderate life span exceeding 20 years (Boland, 1987). It is a fast growing shrub or tree suited to cool climates and its roots have the ability to fix nitrogen. Its wood can be used as a satisfactory firewood or as an excellent source of pulp for paper production. The species is suitable for use on farms as a windbreak or for erosion control and is often planted as an ornamental tree (Doran and Turnbull, 1997)."

703	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Propagules likely to disperse as a produce contaminant? No] No evidence
703	2006. DAISE. Species Factsheet - Acacia dealbata. http://www.europe-aliens.org/pdf/Acacia_dealbata.pdf	[Propagules likely to disperse as a produce contaminant? No] No evidence
704	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Propagules adapted to wind dispersal? Possibly] "Pods are bluish glaucous, oblong in shape 58 80 mm long and 8-12 mm wide (Tame, 1992). Margins are slightly thicker and raised and irregular which constricts between seeds. The seed is black and oblong 4-6 x 2-3 mm, arranged longitudinally in the pod with a short seed stalk, has a cap like aril (Simmons, 1988). Seed is shed and remains viable in the ground for many years."
704	2006. DAISE. Species Factsheet - Acacia dealbata. http://www.europe-aliens.org/pdf/Acacia_dealbata.pdf	[Propagules adapted to wind dispersal? Possibly] "Seeds are dispersed by animals, namely birds and ants, and by sporadic strong winds. However, the majority of the seeds accumulate under the tree." [Possibly short distances by wind]
705	2011. Gibson, M.R./Richardson, D.M./Marchante, E./Marchante, H. et al.. Reproductive biology of Australian acacias: important mediator of invasiveness?. Diversity and Distributions. 17(5): 911-933.	[Propagules water dispersed? Yes] "Abiotic dispersal in water and soil is important in many regions (Milton & Hall, 1981). There is a strong association between <i>A. dealbata</i> invasions and watercourses in Chile and Portugal (H. Marchante, unpublished data; Pauchard et al., 2008)."
706	2006. DAISE. Species Factsheet - Acacia dealbata. http://www.europe-aliens.org/pdf/Acacia_dealbata.pdf	[Propagules bird dispersed? Yes] "Seeds are dispersed by animals, namely birds and ants, and by sporadic strong winds. However, the majority of the seeds accumulate under the tree."
706	2012. Florabase. Acacia dealbata. Department of Environment and Conservaton Western Australian Herbarium, http://florabase.dec.wa.gov.au/browse/profile/17858	[Propagules bird dispersed? Yes] "Dispersal. Water, bird, ants, soil movement, garden refuse. "
707	2010. Lorenzo, P./onzalez, L./Reigosa, G.M.J.. The genus Acacia as invader: the characteristic case of Acacia dealbata Link in Europe. Annals of Forest Science. 67(1): DOI: 10.1051/forest/2009082.	[Propagules dispersed by other animals (externally)? Yes] "Acacia dealbata is a tree whose seeds have a white aril and a longitudinal orientation in the pods, thus falling into Davidson and Morton's group I. White arils are often indicative of myrmecochory (Whitney, 2002), and if it is true that interactions between myrmecochorous plants and ants are often not highly specialized or species-specific (see Horvitz and Beattie, 1980), this might be decisive in <i>A. dealbata</i> dispersion in new habitats." ... "A. dealbata may benefit from dispersal by ants in open areas with scarce adult trees (and, thus, reduced bird densities), or during early population establishment when fruiting biomass may be inadequate to attract birds (see Davidson and Morton, 1984)."
707	2011. Gibson, M.R./Richardson, D.M./Marchante, E./Marchante, H. et al.. Reproductive biology of Australian acacias: important mediator of invasiveness?. Diversity and Distributions. 17(5): 911-933.	[Propagules dispersed by other animals (externally)? Yes] "In Portugal, two of the most invasive and widespread Acacia species (<i>A. dealbata</i> and <i>A. longifolia</i>) are ant-dispersed (Marchante et al., 2010)"
708	2012. Florabase. Acacia dealbata. Department of Environment and Conservaton Western Australian Herbarium, http://florabase.dec.wa.gov.au/browse/profile/17858	[Propagules survive passage through the gut? Presumably Yes] "Dispersal. Water, bird, ants, soil movement, garden refuse. "
801	2011. Gibson, M.R./Richardson, D.M./Marchante, E./Marchante, H. et al.. Reproductive biology of Australian acacias: important mediator of invasiveness?. Diversity and Distributions. 17(5): 911-933.	[Prolific seed production (>1000/m2)? Yes] "Table 2. Seed rain density (SRD), seed bank density (SBD) and seed viability (SV) for Australian acacias in native and introduced ranges. " [<i>A. dealbata</i> - Seed bank density per m2 (SBD) = 10000 in Chile; ca. 22500 in Portugal; Seed rain density per m2 per year (SRD) = 2553 (3244) in New Zealand]
802	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Evidence that a persistent propagule bank is formed (>1 yr)? Yes] "Seed is shed and remains viable in the ground for many years"
802	2011. Fuentes-Ramirez, A./Pauchard, A./Garcia, R.A./Cavieres, L.A.. Survival and growth of Acacia dealbata vs. native trees across an invasion front in south-central Chile. Forest Ecology and Management. 261: 1003-1009.	[Evidence that a persistent propagule bank is formed (>1 yr)? Yes] "It regenerates through seeds, but often through vegetation sprouting, after cutting or fires. It forms a permanent seed bank, which rapidly germinates after a fire or other type of disturbance (Sanz-Elorza et al., 2004; Gómez-Vigide et al., 2005)."

803	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Well controlled by herbicides? Yes] "Mechanical control is achieved by ringbarking or digging out, chemical control by basal stem treatments, stump treatments, or foliar spray with herbicides. After clearing large infestations, a follow-up programme is necessary to remove emerging seedlings and to prevent coppice regrowth. Stumps need to be treated with herbicides in order to prevent resprouting, and it is recommended to keep stumps lower than 15 cm"
803	2006. DAISE. Species Factsheet - Acacia dealbata. http://www.europe-aliens.org/pdf/Acacia_dealbata.pdf	[Well controlled by herbicides? Yes] "Chemical Glyphosate application at the stump level is quite efficient. This must be conducted immediately after cutting to be effective. Foliar sprays can also be applied."
803	2012. Florabase. Acacia dealbata. Department of Environment and Conservaton Western Australian Herbarium, http://florabase.dec.wa.gov.au/browse/profile/17858	[Well controlled by herbicides? Yes] "For mature plants apply 250 ml Access® in 15 L of diesel to basal 50 cm of trunk (basal bark), or drill and fill with 50% glyphosate. Older plants can be ringbarked. Monitor site for recruitment from seedbank. Read the manufacturers' labels and material safety data sheets before using herbicides."
804	2004. Maslin, B.R./McDonald, M.W.. AcaciaSearch - Evaluation of Acacia as a woody crop option for southern Australia. RIRDC Publication No. 03/017. Rural Industries Research and Development Corporation, Barton, Australia	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "It regenerates readily following fire and often forms fire-induced thickets by prolific root suckering."
804	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "A. dealbata produces root suckers and coppices easily."
804	2010. Lorenzo, P./onzalez, L./Reigosa, G.M.J.. The genus Acacia as invader: the characteristic case of Acacia dealbata Link in Europe. Annals of Forest Science. 67(1): DOI: 10.1051/forest/2009082.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "A. dealbata can propagate by re-sprouting after cutting, fire or frost (Sheppard et al., 2006), giving the plant a high capacity to resist most types of mechanical control. Its rapid invasion of new environments may be facilitated by its capacity for growth by vegetative reproduction."
804	2011. Le Maitre, D.C./Gaertner, M./Marchante, E. et al.. Impacts of invasive Australian acacias: implications for management and restoration. Diversity and Distributions. 17: 1015–1029.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "In Chile, fire promotes the spread of A. dealbata by reducing native species cover and stimulating epicormic sprouting. Fire may also reduce native seed viability and stimulate germination of Acacia (a positive feedback loop)."
805	2006. DAISE. Species Factsheet - Acacia dealbata. http://www.europe-aliens.org/pdf/Acacia_dealbata.pdf	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown for Hawaiian Islands] "Biological Melanterius maculatus Lea (Curculionidae) is a seed-feeding weevil that destroys its seeds. This agent was released in South Africa and its establishment has been confirmed, despite the damage caused having not been quantified yet."

Summary of Risk Traits

High Risk / Undesirable Traits

- Widely naturalized
- High invasive environmental weed
- Potentially allelopathic
- Thicket-forming
- Hybridizes with other Acacia species
- Tolerates many soil conditions (and potentially able to exploit many different habitat types)
- Self-compatible
- Forms root suckers
- Seeds dispersed accidentally & by water, birds, ants and possibly wind
- Prolific seed production
- Forms persistent seed bank
- Resprouts after cutting
- Tolerates fires

Low Risk / Desirable Traits

- Palatable to animals
- Ornamental value
- Possibly shade-intolerant
- Herbicides provide effective control