TAXON: Acacia holosericea A. Cunn. ex G. Don

SCORE: *7.0*

RATING: High Risk

Taxon: Acacia holosericea A. Cunn. ex G. Don

Family: Fabaceae

Common Name(s): candelabra wattle

Synonym(s): Racosperma holosericeum (A. Cunn.

silky wattle

silverleaf wattle

Assessor: No Assessor Status: Assessor Approved End Date: 18 May 2018

WRA Score: 7.0 Designation: H(HPWRA) Rating: High Risk

Keywords: Tropical Tree, N-Fixing, Arillate Seeds, Fast-Growing, Heavy Seeding

Qsn#	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
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)	High
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	n
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	У
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	У
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	n
302	Garden/amenity/disturbance weed		
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed		
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	У
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	у
405	Toxic to animals		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle		

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	у
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	У
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	У
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	У
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	У
707	Propagules dispersed by other animals (externally)	y=1, n=-1	У
708	Propagules survive passage through the gut	y=1, n=-1	У
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	У
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

SCORE: 7.0 **RATING**: High Risk

Supporting Data:

2018]

<u>Supporti</u>	upporting Data:		
Qsn #	Question	Answer	
101	Is the species highly domesticated?	n	
	Source(s)	Notes	
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	No evidence of domestication	
102	Has the species become naturalized where grown?	T	
	Source(s)	Notes	
	WRA Specialist. 2018. Personal Communication	NA	
	•		
103	Does the species have weedy races?		
	Source(s)	Notes	
	WRA Specialist. 2018. Personal Communication	NA	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical"	High	
	Source(s)	Notes	
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 17 May 2018]	"Native Australasia AUSTRALIA: Australia [Northern Territory, Queensland, Western Australia (n.)]"	
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	"Widespread in northern Australia extending from near Derby, W.A. E across the N.T. to near Rockhampton in eastern Qld. Also scattered occurrences in arid regions at Hamersley Ra. Natl Park, W.A., through central N.T. and to SW of Blackall, Qld."	
	1	, , , ,	
202	Quality of climate match data	High	
	Source(s)	Notes	
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 17 May 2018]		
202	Durad dimeta suita kilita / ta		
203	Broad climate suitability (environmental versatility)	n Notes	
	Source(s) Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S.	Notes	
	2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2019]	"Altitude: 150-450 m, Mean annual temperature: 19.5-34.7 deg. C, Mean annual rainfall: 600-1 200 mm"	

Qsn #	Question	Answer
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Climatic amplitude (estimates) - Altitude range: 0 - 800 m - Mean annual rainfall: 300 - 1700 mm - Rainfall regime: summer - Dry season duration: 5 - 7 months - Mean annual temperature: 20 - 28°C - Mean maximum temperature of hottest month: 29 - 40°C - Mean minimum temperature of coldest month: 5 - 20°C - Absolute minimum temperature: > -7°C"

204	Native or naturalized in regions with tropical or subtropical climates	у
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 17 May 2018]	"Native Australasia AUSTRALIA: Australia [Northern Territory, Queensland, Western Australia (n.)]"

205	Does the species have a history of repeated introductions outside its natural range?	у
	Source(s)	Notes
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2018]	"Burkina Faso, India, Kenya, Niger, Nigeria, Senegal, Sudan"

Qsn #	Question	Answer
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"List of countries: Europe Portugal planted Asia Cambodia planted China planted Guangdong planted Guangxi planted Hainan planted India planted Andhra Pradesh planted Haryana planted Indian Punjab planted Karnataka planted Madhya Pradesh planted Maharashtra planted Orissa planted Rajasthan planted Tamil Nadu planted Uttar Pradesh planted West Bengal planted Indonesia planted Nusa Tenggara planted Israel planted Laos planted Myanmar planted Nepal planted Sri Lanka planted Philippines planted Saudi Arabia planted Sri Lanka planted Yemen planted Africa Botswana planted Burkina Faso planted Surundi planted Cameroon planted Cape Verde planted Comoros planted Congo Democratic Republic planted Congo planted Ethiopia planted Ghana planted Kenya planted Madagascar planted Malawi planted Mali planted Mauritania planted Mozambique planted Namibia planted Niger planted Nigeria planted Rwanda planted Senegal planted Sierra Leone planted Somalia planted South Africa planted Sudan planted Tanzania planted Zanzibar planted Uganda planted Zambia planted Zimbabwe planted Central America & Caribbean Cuba planted Dominican Republic planted Haiti planted Jamaica planted Dominican Republic planted Haiti planted Brazil planted Chile planted South America Bolivia planted Brazil planted Chile planted Paraguay planted Peru planted Venezuela planted Chile planted Paraguay planted Peru planted Venezuela planted Oceania [Australia] Australian Northern Territory natural and planted Queensland natural and planted Western Australia natural and planted Fiji planted Papua New Guinea planted Solomon Islands planted"

301	Naturalized beyond native range	n
	Source(s)	Notes
	McCormack, G. 2007. Cook Islands Biodiversity Database, Version 2007.2. Cook Islands Natural Heritage Trust, Rarotonga. http://cookislands.bishopmuseum.org. [Accessed 17 May 2018]	"COOK ISLANDS STATUS: Introduced - Recent, Not naturalised; Land, lowlands"
	Richardson, D. M., & Rejmánek, M. 2011. Trees and shrubs as invasive alien species—a global review. Diversity and Distributions, 17(5): 788-809	"Table Box 1 The geographical distribution of 23 Australian acacias known to be invasive outside their native ranges." [A. holosericea - Number of regions = 0]
	Kull, C. A., Tassin, J., Rambeloarisoa, G., & Sarrailh, J. M. (2008). Invasive Australian acacias on western Indian Ocean islands: a historical and ecological perspective. African Journal of Ecology, 46(4), 684-689	[Not reported as naturalized in this publication] "Table 1 List and characterization of the Australian Acacia species introduced in the western Indian Ocean islands" [A. holosericea - Status on western Indian Ocean islands = Planted (Re´u, Mad)]
	Haysom, K.A. & Murphy, S.T. (2003). The status of invasiveness of forest tree species outside their natual habitat: a global review and discussion paper. Forest Health and Biosecurity Working Paper FBS/3E. FAO, Rome, Italy	A. holosericiea is reported as being introduced to 69 countries throughout the world, and has not been reported as naturalized or invasive in any of the countries.
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. 2018. Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/. [Accessed]	No evidence in Hawaiian Islands to date

Qsn #	Question	Answer
	Tassin, J., Riviere, JN., Cazanove, M. & Bruzzese, E. 2006. Ranking of invasive woody plant species for management on Reunion Island. Weed Research, 46(5): 388-403	

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	Orwa C., Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2018]	"The early and abundant seeding of A. holosericea has the potential of making it a weed."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	[Listed as a weed in several references. Unable to find evidence of impacts in references cited] "Acacia holosericea A. Cunn. ex G. Don Fabaceae - Mimosaceae Total N° of Refs: 12 Global Risk Score: 6.4 Rating: Low Habit: Tree Preferred Climate/s: Dryland Origin: Aust Major Pathway/s: Crop, Forestry, Herbal, Ornamental, Pasture Dispersed by: Humans, Animals References: Philippines-nC-1099, La Reunion-N-1321, Brazil-I-984, Brazil-I- 1328, Global-W-1376, Global-I-1404, Brazil-I-1876, Brazil-W-1977, Brunei Darussalam-W-1977, Burkina Faso-W- 1977, Cook Islands-W-1977, India-W- 1977"

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

sn #	Question	Answer
804	Environmental weed	
	Source(s)	Notes
	Remigi, P. et al. (2008). The exotic legume tree species Acacia holosericea alters microbial soil functionalities and the structure of the arbuscular mycorrhizal community. Applied and Environmental Microbiology, 74(5), 1485-1493	[Alters soil microbial function. Impacts on native ecosystems and/or agriculture unknown] "The response of microbial functional diversity as well as its resistance to stress or disturbances caused by the introduction of an exotic tree species, Acacia holosericea, ectomycorrhized or not with Pisolithus albus, was examined. The results show that this ectomycorrhizal fungus promotes drastically the growth of this fastgrowing tree species in field conditions after 7 years of plantation. Compared to the crop soil surrounding the A. holosericea plantation, this exotic tree species, associated or not with the ectomycorrhizal symbiont, induced strong modifications in soil microbial functionalities (assessed by measuring the patterns of in situ catabolic potential of microbial communities) and reduced soil resistance in response to increasing stress or disturbance (salinity, temperature, and freeze-thaw and wet-dry cycles). In addition, A. holosericea strongly modified the structure of arbuscular mycorrhizal fungus communities. These results show clearly that exotic plants may be responsible for important changes in soil microbiota affecting the structure and functions of microbial communities."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	У
	Source(s)	Notes
	Le Maitre, D. C., Gaertner, M., Marchante, E., Ens, E. J., Holmes, P. M., Pauchard, A., O'Farrell, P. J., Rogers, A. M., Blanchard, R., Blignaut, J. & Richardson, D. M. (2011). Impacts of invasive Australian acacias: implications for management and restoration. Diversity and Distributions, 17(5): 1015-1029	"Case studies are used to identify similarities and differences between three regions severely affected by invasions of Australian acacias: Acacia dealbata in Chile, Acacia longifolia in Portugal and Acacia saligna in South Africa." "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 preinvasion condition is inhibited, necessitating active intervention to restore composition and function."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Several Acacia species are invasive

Qsn #	Question	Answer
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	[No evidence] "Shrub or tree 3–8 m high. Branchlets acutely angled but normally ±terete by 2 –30 cm below apex, usually sericeous, sometimes glabrous. Young shoots silvery sericeous, sometimes glabrous. Phyllodes obliquely narrowly elliptic, 10–20 cm long, normally 2–5 cm wide, with unequal base, usually sericeous; mucro 1–3 mm long; normally 3 prominent nerves per face confluent and contiguous with abaxial margin at base; minor nerves forming a somewhat open longitudinally orientated reticulum; glands basal and at base of mucro on at least some phyllodes. Inflorescences rudimentary racemes with axes to 0.5 mm long; peduncles 3–7 mm long, sericeous, sometimes glabrous; spikes normally 2–4 cm long, golden; bracteoles linear-spathulate, 1–1.5 mm long. Flowers 5-merous; sepals united. Pods tightly and often somewhat irregularly coiled, 2.5–4 mm wide, thinly crustaceous to coriaceous crustaceous, ±glabrous, remaining as entangled clumps following dehiscence. Seeds longitudinal, oblong-elliptic, 3.5 mm long, shiny, dark brown; aril bright yellow."

402	Allelopathic	
	Source(s)	Notes
	holosericea (Fabaceae) litter has allelopathic and physical effects on mission grass (Cenchrus pedicellatus and C.	[Inhibition was due to physical rather than chemical properties] "Abstract. Invasion of grass weeds is a major threat for ecosystems. Mission grass (Cenchrus pedicellatus and C. polystachios) vigorously competes with native vegetation and has become a serious problem in northern Australian savanna. A lower density of mission grass has been observed under the canopy of stands of native Acacia holosericea. We used a series of laboratory and shade house experiments to assess the potential for allelopathy and the role of litter on germination, emergence and seedling growth of these two species of mission grass. Different concentrations of aqueous leaf extract of A. holosericea were used to assess allelopathic effects on germination. Various depths and types of litter were used to investigate the allelopathic and physical effects of litter on emergence and growth of mission grass seedlings in the shade house. Results indicate that extracts did not affect germination of either species of mission grass but root growth of seedlings was affected. Emergence of seedlings in the shade house was affected by physical litter treatments but not by allelopathy. After emergence no negative effects on seedling growth were detected. Overall we found that there was no allelopathic effect on germination and that the negative effect on emergence was due to the physical properties of the litter. This effect on emergence increased with increasing depth of litter. Allelopathy slightly inhibited root growth but once seedlings emerged, litter tended to facilitate growth. This has implications for the ecological management of mission grass on disturbed lands, using strategies such as manipulation of litter cover through Acacia establishment."

Qsn #	Question	Answer	
	Srinivasan, K., Ramasamy, M., & Shantha, R. (1990). Tolerance of pulse crops to allelochemicals of tree species. Indian Journal of Pulses Research, 3(1), 40-44	[Slight allelopathic effect in pot experiments] "Abstract: In a pot experiment in 1988-89, Vigna mungo, V. radiata, cowpeas, pigeonpeas and soyabeans were grown for 30 d in topsoil taken from under Eucalyptus tereticornis, Casuarina equisetifolia, Leucaena leucocephala and Acacia holosericea. Topsoil from under all 4 tree species reduced crop germination and growth. E. tereticornis had the greatest inhibitory effect. Soyabeans were the most sensitive crop. Soyabean germination in topsoil from under E. tereticornis was 69% of germination in control plants and DM production was reduced by 10%. Cowpeas were the most tolerant crop."	
403	Parasitic	n	
	Source(s)	Notes	
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	"Shrub or tree 3–8 m high." [Fabaceae. No evidence]	
404	Unpalatable to grazing animals	у	
	Source(s)	Notes	
	Doran, J. C. & Turnbull, J. W.1997. Australian Trees and Shrubs: species for land rehabilitation and farm planting in the tropics. ACIAR Monograph No. 24. Canberra, Australia	"Fodder: A. holosericea is not grazed to any extent by stock in Australia. Analyses of fodder value have not been especially promising: phyllode digestibility (36–38%) and protein content (13–14%) were found to be lower than for the related A. colei and A. cowleana (Vercoe 1989)."	
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2018]	"Fodder: Large quantities of phyllode biomass, produced during the dry season when other acacias shed their leaves, is a valuable fodder source. However, fodder should be dried before it is fed to livestock, as fresh phyllodes are not palatable for cattle and sheep, and there are reports from Niger of goats dying after consuming them. Crude proteins and digestibility are low, due to their high concentrations of tannins, which limit the availability of the protein component. Trees 4 years old have reportedly produced about 3 t/ha of dry phyllodes."	
405	T	<u> </u>	
405	Toxic to animals Source(s)	Notes	
		"Fodder: A. holosericea is not grazed to any extent by stock in	
	Doran, J. C. & Turnbull, J. W.1997. Australian Trees and Shrubs: species for land rehabilitation and farm planting in the tropics. ACIAR Monograph No. 24. Canberra, Australia	Australia. Analyses of fodder value have not been especially promising: phyllode digestibility (36–38%) and protein content (13–14%) were found to be lower than for the related A. colei and A. cowleana (Vercoe 1989)."	

Qsn #	Question	Answer
	Williams, C. 2012. Medicinal Plants in Australia Volume 3: Plants, Potions and Poisons. Rosenberg Publishing, Kenthurst NSW	[Can be used to poison fish] "Acacia holosericea was a fast-acting piscicide that was effective within half an hour of its use. The bark contains around 4 per cent tannin, and the saponin-rich green pods have been used as a bush soap due to their frothing qualities. Acacia holosericea is of further interest because it contains an alkaloid, hordenine (N,N-dimethyltyramine 1.2%), that has been used as a heart muscle stimulant— although, in small doses, it can have intestinal muscle relaxant effects (Hiddins 1999; Lassak & McCarthy 1992; Barr 1988). The compound also has diuretic, antibacterial and antibiotic properties that may have influenced the medicinal use of some plants. Certainly, the disinfectant attributes of hordenine could be useful for treating dysentery. However, while the compound is generally regarded as having low toxicity large doses can have a hypertensive effect due to an ephedrine-like action (Southon 1989)."
	Orwa C., Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 18 May 2018]	[Seeds may be toxic, but unlikely to poison animals. Foliage not reported to be toxic] "Food: Seeds are edible, but consumption is limited by chances of toxicity, the labour-intensive procedure of preparating them for making flour, and their unpleasant odour." "Large quantities of phyllode biomass, produced during the dry season when other acacias shed their leaves, is a valuable fodder source. However, fodder should be dried before it is fed to livestock, as fresh phyllodes are not palatable for cattle and sheep, and there are reports from Niger of goats dying after consuming them. Crude proteins and digestibility are low, due to their high concentrations of tannins, which limit the availability of the protein component. Trees 4 years old have reportedly produced about 3 t/ha of dry phyllodes."
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 18 May 2018]	"Insect pests recorded include Myllocerus spp and Sextius spp. Fungi causing diseases include Aecidium, Fusarium oxysporum, Meloidogyne and Uromyces digitatus."
	Doran, J. C. & Turnbull, J. W.1997. Australian Trees and Shrubs: species for land rehabilitation and farm planting in the tropics. ACIAR Monograph No. 24. Canberra, Australia	"Pests and diseases. Recorded minor insect pests include Ancita marginicollis (stem-boring beetle), Dicranosterna picea and Myllocerus sp. (beetle defoliators) and Sextius sp. (sap-sucker) (Ryan and Bell 1989). Recorded diseases include: the rusts Aecidium spp. and Uromyces digitatus; and the wilts Fusarium spp. and Meloidogyne spp.; and the powdery mildew Oidium spp. (Boa and Lenné 1994)."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes

Qsn #	Question	Answer
	Doran, J. C. & Turnbull, J. W.1997. Australian Trees and Shrubs: species for land rehabilitation and farm planting in the tropics. ACIAR Monograph No. 24. Canberra, Australia	"Acacia holosericea was a fast-acting piscicide that was effective within half an hour of its use. The bark contains around 4 per cent tannin, and the saponin-rich green pods have been used as a bush soap due to their frothing qualities. Acacia holosericea is of further interest because it contains an alkaloid, hordenine (N,N-dimethyltyramine 1.2%), that has been used as a heart muscle stimulant— although, in small doses, it can have intestinal muscle relaxant effects (Hiddins 1999; Lassak & McCarthy 1992; Barr 1988). The compound also has diuretic, antibacterial and antibiotic properties that may have influenced the medicinal use of some plants. Certainly, the disinfectant attributes of hordenine could be useful for treating dysentery. However, while the compound is generally regarded as having low toxicity large doses can have a hypertensive effect due to an ephedrine-like action (Southon 1989)."
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed]	"Seeds are edible, but consumption is limited by chances of toxicity, the labour-intensive procedure of preparating them for making flour, and their unpleasant odour."

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Bowman, D. M. J. S., Wilson, B. A., & Hooper, R. J. (1988). Response of Eucalyptus forest and woodland to four fire regimes at Munmarlary, Northern Territory, Australia. The Journal of Ecology, 76(1): 215-232	[Cover higher in unburnt areas. Unknown if it contributes to fire frequency] "Protection against fire resulted in the development of a dense understorey in both the forest 'and woodland. The understorey in the forest was dominated by two species of Acacia, and Erythrophleum chlorostachys. In the woodland the understorey was dominated by Acacia holosericea and two broadleaf species." "Of the ten species which respond to fire but do not show a fireblock interaction, only one shrub, Acacia holosericea, had a cover on the unburnt treatment which was significantly greater than on other treatments"
	Radford, I. J., Grice, A. C., Abbott, B. N., Nicholas, D. M., & Whiteman, L. (2008). Impacts of changed fire regimes on tropical riparian vegetation invaded by an exotic vine. Austral Ecology, 33(2), 151-167	[Increases following fire. Contributions to fire unknown] "Single dryseason fires led to major increases in some native Acacia, in particular A. salicina and A. holosericea, but also apparent decreases in others (e.g. A. leptostachya). Increases were likely to result from recruitment events, although we have no direct data on this."

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	Australian National Botanic Gardens, 2012. Wattles - genus Acacia. Commonly Grown Acacia, Australian Government, Canberra. http://www.anbg.gov.au/acacia/species.html. [Accessed 18 May 2018]	"Acacia holosericea Cultivation: Generally adaptable in cultivation, responds to sunny, reasonably well drained positions in most soils."
	Herbalistics. 2018. Acacia holosericea. https://herbalistics.com.au/product/acacia-holosericea- seed/. [Accessed 18 May 2018]	"Likes a full sun position and is tolerant of dry conditions once established."

Qsn #	Question	Answer
	Doran, J. C. & Turnbull, J. W.1997. Australian Trees and Shrubs: species for land rehabilitation and farm planting in the tropics. ACIAR Monograph No. 24. Canberra, Australia	[A disturbance, high-light environment plant and an understory, presumably somewhat shade tolerant plant] "In Northern Territory A. holosericea is a common pioneering plant in disturbed situations especially favouring permanent and seasonal freshwater creeks and streams (Brock 1988)." "In the more humid parts of its range in north Queensland A. holosericea occurs as an understorey in tall eucalypt woodland together with E. cullenii, E. leptophleba, E. papuana, E. confertiflora, E. polycarpa, Erythrophloem chlorostachys and A. crassicarpa. It also occurs as an understorey of low eucalypt woodlands (Tracey 1982)."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	у
	Source(s)	Notes
	Cossalter, C. (1987). Introducing Australian acacias in dry, tropical Africa. In Australian acacias in developing countries. Proceedings of an International Workshop at the Forestry Training Center, Gympie, Australia (pp. 118-122)	"A trial comparing the behaviour of five Australian acacias (A. bivenosa, A. holosericea, A. sclerosperma, A. tumida, A. trachycarpa) on six types of soil found at Keur Mactar (Senegal), showed that A. holosericea is the only species adapted to all soil types even in very arduous situations such as 'tannes' (salty soils), where its rate of survival was 84070 at 40 months. It was also the only species tested which tolerated waterlogged soils at which its growth was rather impressive at the age of 40 months"
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2018]	"Soil type: Grows on a wide range of soils from shallow acidic sandy lithosols, shallow loams, red volcanic and solodized solonets soils."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	Soil descriptors - Soil texture: light; medium; heavy - Soil drainage: free; seasonally waterlogged - Soil reaction: acid; neutral; alkaline - Special soil tolerances: shallow; infertile

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	"Shrub or tree 3–8 m high."

0 #	Quantities	A
Qsn #	Question	Answer
412	Forms dense thickets	
	Source(s)	Notes
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	"Grows in sometimes gravelly sand or loam, commonly forming communities along watercourses."
	Fox, J. E. D. (1987). Potential of Australian Acacias from arid and semi-arid zones. Australian Acacias in Developing Countries, 17-28. Australian Centre for International Agricultural Research, Canberra, A.C.T.	[Unknown if dense clumps exclude other vegetation] "Acacia holosericea tends to form dense clumps in disturbed places or near water courses (Petheram and Kok 1983)."
F04	A	
501	Aquatic	n Notes
	Source(s)	
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	[Terrestrial. Occurs in riparian areas] "Shrub or tree 3–8 m high." "Grows in sometimes gravelly sand or loam, commonly forming communities along watercourses."
502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 17 May 2018]	Family: Fabaceae (alt.Leguminosae) Subfamily: Caesalpinioideae Tribe: Acacieae
	<u></u>	
503	Nitrogen fixing woody plant	У
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"A. holosericea is a fast-growing, nitrogen-fixing, multi-stemmed large shrub or small tree up to 9 m tall."
	Geophyte (herbaceous with underground storage organs	n
504	bulbs, corms, or tubers)	
504	bulbs, corms, or tubers) Source(s)	Notes

Collingwood, Australia

Qsn #	Question	Answer
Q311 #	Evidence of substantial reproductive failure in native	Allower
601	habitat	n
	Source(s)	Notes
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	[No evidence] "Widespread in northern Australia extending from near Derby, W.A., E across the N.T. to near Rockhampton in eastern Qld. Also scattered occurrences in arid regions at Hamersley Ra. Na Park, W.A., through central N.T. and to SW of Blackall, Qld. Grows in sometimes gravelly sand or loam, commonly forming communities along watercourses."
		1
602	Produces viable seed	У
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"A. holosericea has many features of a colonizing species, such as early (6-12 months) and heavy seeding habit"
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2018]	"Seed storage behaviour is orthodox; 11% viability lost after 14 year storage at room temperature. There are 100 000- 175 000 seeds/kg Seed pretreatment with boiling water for 1 minute is necessary to break dormancy and enhance germination."
	1	
603	Hybridizes naturally	
	Source(s)	Notes
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	Unknown. No evidence, but hybrids documented in genus
		,
604	Self-compatible or apomictic	
	Source(s)	Notes
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	[Unknown] "Inflorescences rudimentary racemes with axes to 0.5 mm long; peduncles 3–7 mm long, sericeous, sometimes glabrous; spikes normally 2–4 cm long, golden; bracteoles linear-spathulate, 1–1.5 mm long. Flowers 5-merous; sepals united."
605	Requires specialist pollinators	n
	Source(s)	Notes
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 24 May 2018]	"Like most acacias, A. holosericea relies on sexual reproduction. It produces a large number of flowers, a small proportion of which develops into fruit. It is pollinated by the activity of insects and birds."
	Daniel de la constant	1
606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes

Qsn #	Question	Answer
	Australian National Botanic Gardens, 2012. Wattles - genus Acacia. Commonly Grown Acacia, Australian Government, Canberra. http://www.anbg.gov.au/acacia/species.html. [Accessed 17 May 2018]	"Acacia holosericea Propagation: From scarified seed or boiling water treatment." [Other Acacia species have a tendency to sucker, but A. holosericea is not listed among them]
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 18 May 2018]	[No evidence] "Like most acacias, A. holosericea relies on sexual reproduction. It produces a large number of flowers, a small proportion of which develops into fruit. It is pollinated by the activity of insects and birds. Seed dispersal is prompted by propulsion from drying dehiscent pods. Browsing vertebrates sometimes also play a role in seed dispersal. In its native range in Australia, The main flowering period is June-August but can be April-October. Fruits mature in August-October."

607	Minimum generative time (years)	1
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"A. holosericea has many features of a colonizing species, such as early (6-12 months) and heavy seeding habit"
	planting in the tropics ACIAR Monograph No. 24. Capherra, Australia	"When conditions are favourable acacias produce flowers in great profusion. Flowering usually commences at an early age; A. monticola can flower in its first year, but many species such as A. holosericea and A. simsii flower in their second year and produce mature seed from the third year."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	and Shrubs: species for land rehabilitation and farm planting in the tropics. ACIAR Monograph No. 24. Canberra, Australia	[Unlikely. Seeds relatively small, but lack means of external attachment] "The pods are in densely intertwined clusters. They are coiled (at least twice), 2–8 cm long by 2–3 mm wide, thin-textured and sometimes constricted and raised over the seeds. The seeds are 2.5–3.5 mm long by 1.5–2 mm wide, rectangular, black, shiny with a small yellow aril at the base."

702	Propagules dispersed intentionally by people	у
	Source(s)	Notes
	Cossalter, C. (1987). Introducing Australian acacias in dry, tropical Africa. In Australian acacias in developing countries. Proceedings of an International Workshop at the Forestry Training Center, Gympie, Australia (pp. 118-122)	"Acacia holosericea is by far the most frequently planted Australian Acacia in development schemes. It is used in forest plantations and also in rural afforestation schemes (field crop delimitation, windbreaks) and in amenity plantings."
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2018]	"Ornamental: A. holosericea is becoming a popular species for planting in towns and for roadside windbreaks. The silvery foliage, early appearance of its yellow flower spikes and prominent twisted pods make it an attractive ornamental shrub. Its relatively short life span of 4-8 years is a limiting factor."

Qsn #	Question	Answer
703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Dispersed by: Humans, Animals" [No evidence]

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2018]	"Seed dispersal is prompted by propulsion from drying dehiscent pods. Browsing vertebrates sometimes also play a role in seed dispersal."
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	[No adaptations for wind dispersal] "Pods tightly and often somewhat irregularly coiled, 2.5–4 mm wide, thinly crustaceous to coriaceous-crustaceous, ±glabrous, remaining as entangled clumps following dehiscence. Seeds longitudinal, oblong-elliptic, 3.5 mm long, shiny, dark brown; aril bright yellow."

705	Propagules water dispersed	
	Source(s)	Notes
		[Possibly yes. Occurs along watercourses] "Grows in sometimes gravelly sand or loam, commonly forming communities along watercourses."
	and Shrubs: species for land rehabilitation and farm	[Possibly Yes] "In Northern Territory A. holosericea is a common pioneering plant in disturbed situations especially favouring permanent and seasonal fresh-water creeks and streams (Brock 1988)."

706	Propagules bird dispersed	у
	Source(s)	Notes
	Gibson, M. R., Richardson, D. M., Marchante, E., Marchante, H., Rodger, J. G., Stone, G. N., & Wilson, J. R. (2011). Reproductive biology of Australian acacias: important mediator of invasiveness?. Diversity and Distributions, 17(5): 911-933	" of the 23 species of Australian Acacia considered invasive (sensu Pysek et al., 2004; Richardson & Rejma´nek, 2011), only eight species are known to be bird-dispersed or possess typical bird-dispersed seed traits (Davidson & Morton, 1984; O'Dowd & Gill, 1986; Langeland & Burks, 1998; Stanley & Lill, 2002): Acacia auriculiformis, A. cyclops, A. holosericea, A. implexa, A. longifolia, A. mangium, A. melanoxylon and A. salicina""
	Orchard, A.E. & Wilson, A. J. G. (eds.). 2001. Flora of Australia: Mimosaceae, Acacia. v. 11A, 11B, Part 2. Collingwood, Australia	"Seeds longitudinal, oblong-elliptic, 3.5 mm long, shiny, dark brown; aril bright yellow."

707	Propagules dispersed by other animals (externally)	у
	Source(s)	Notes

Qsn #	Question	Answer
	Parr, C. L., Andersen, A. N., Chastagnol, C., & Duffaud, C. (2007). Savanna fires increase rates and distances of seed dispersal by ants. Oecologia, 151(1), 33-41	[Ant-dispersed] "Seeds of Acacia holosericea, a shrub that is widely distributed throughout northern Australia and naturally occurs at the TWP, were used for the study (see Brock 1988; Flora of Australia 2001). Seeds of A. holosericea are average-size for a myrmecochore (approximately 2 mm in length; see Andersen and Morrison 1998), and dark brown in colour with bright yellow-orange arils. The Weld experiment, both pre- and post-fire, coincided with the natural seed fall of this species. Indeed the majority of myrmechochores in the region (predominantly species of Acacia) fruit during the dry season (June— October; Brock 1988; Brennan 1996), which coincides with the fire season. A. holosericea is an obligate seeder whose establishment is favoured by disturbance."

708	Propagules survive passage through the gut	у
	Source(s)	Notes
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 17 May 2018]	"Seed dispersal is prompted by propulsion from drying dehiscent pods. Browsing vertebrates sometimes also play a role in seed dispersal."

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Orwa C., Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 18 May 2018]	"There are 100 000-175 000 seeds/kg."
	Doran, J. C. & Turnbull, J. W.1997. Australian Trees and Shrubs: species for land rehabilitation and farm planting in the tropics. ACIAR Monograph No. 24. Canberra, Australia	[Heavy seeding. Densities unspecified] "The form and size of this species will restrict its use to fuelwood and charcoal. A. holosericea has many features of a colonising species, such as early (6–12 months) and heavy seeding habit, rapid growth and short life span (10–12 years), which suggests that it has the potential to become a weed in some situations."

802	Evidence that a persistent propagule bank is formed (>1 yr)	У
	Source(s)	Notes

Qsn #	Question	Answer
	Merritt, D. J. et al. (2014). A continental-scale study of seed lifespan in experimental storage examining seed, plant, and environmental traits associated with longevity. Biodiversity and Conservation, 23(5), 1081-1104	"Large folded, investing, and spatulate embryos were also common in seeds with physical dormancy (found in Fabaceae, Malvaceae, Rhamnaceae, and Sapindaceae) and these seeds were dominant amongst the longest-lived. In fact, half of the 30 longest-lived species tested had seeds with physical dormancy, including the four longest-lived (Acacia colei var. colei, Mirbelia dilatata, Acacia holosericea, Trymalium ledifolium). Notably, in these seeds it was not the presence of an impermeable seed coat (and therefore an ability to maintain a low seed water content during ageing) that was a contributing factor to longevity, as the seeds were rendered permeable to water prior to ageing. Other attributes of physically dormant seeds, perhaps associated with large relative embryo size, contribute to their longevity in storage."
	Orwa C,, Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 18 May 2018]	"Seed storage behaviour is orthodox; 11% viability lost after 14 years storage at room temperature. There are 100 000-175 000 seeds/kg. Seed pretreatment with boiling water for 1 minute is necessary to break dormancy and enhance germination."
	Wall assistant by banking day	
803	Well controlled by herbicides	N.A
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. Herbicides effectively control other Acacia species, but no information on herbicide efficacy or chemical control of this species
804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	Orwa C., Mutua, A., Kindt R., Jamnadass, R, & Anthony, S. 2009 Agroforestree Database: a tree reference and selection guide version 4.0. http://www.worldagroforestry.org. [Accessed 18 May 2018]	"Lopping and pollarding are recommended. Generally A. holosericea does not coppice well."
	Bowman, D. M. J. S., Wilson, B. A., & Hooper, R. J. (1988). Response of Eucalyptus forest and woodland to four fire regimes at Munmarlary, Northern Territory, Australia. The Journal of Ecology, 76(1): 215-232	[Increases in unburned areas. An obligate seeder. Adult trees killed by fires] "Of the ten species which respond to fire but do not show a fire-block interaction, only one shrub, Acacia holosericea, had a cover on the unburnt treatment which was significantly greater than on other treatments"
	Australian National Botanic Gardens, 2012. Wattles - genus Acacia. Commonly Grown Acacia, Australian Government, Canberra. http://www.anbg.gov.au/acacia/species.html. [Accessed 18 May 2018]	[Tolerates regular pruning] "Prune regularly to maintain rounded shape. Grows very quickly."
	Karachi, M., Shirima, D., & Lema, N. (1997). Evaluation of 15 leguminous trees and shrubs for forage and wood production in Tanzania. Agroforestry Systems, 37(3), 253-	A. holosericea was coppiced in this study. There was no coppice regrowth two months after plants were cut at ground level.

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TAXON: Acacia holosericea A. Cunn. ex G. Don

SCORE: *7.0*

RATING: High Risk

Qsn #	Question	Answer
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown

SCORE: 7.0

RATING: High Risk

Summary of Risk Traits:

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Thrives in tropical climates
- · Other Acacia species are invasive
- · Potentially allelopathic
- Low palatability
- · Seeds may be toxic
- Tolerates many soil types
- · Reproduces by seeds
- Reaches maturity in <1 year
- · Seeds dispersed by ants, birds, other animals, possibly by water & intentionally by people
- Prolific seed production (densities unknown)
- Seeds able to be stored for extended periods; May form a persistent seed bank

Low Risk Traits

- · No reports of naturalization, or negative impacts, despite widespread cultivation outside native range
- Unarmed (no spines, thorns, or burrs)
- Ornamental
- · Not reported to spread vegetatively

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