

<b>Taxon:</b> <i>Melaleuca glomerata</i> F. Muell.	<b>Family:</b> Myrtaceae
<b>Common Name(s):</b> desert honey-myrtle inland paperbark white tea-tree	<b>Synonym(s):</b> <i>Melaleuca hakeoides</i> F. Muell. ex <i>Myrtoleucodendron glomeratum</i> <i>Myrtoleucodendron hakeoides</i>

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Assessor Approved	<b>End Date:</b> 6 May 2020
<b>WRA Score:</b> 2.0	<b>Designation:</b> EVALUATE	<b>Rating:</b> Evaluate

**Keywords:** Tree or Shrub, Dense Thickets, Riparian, Wind-Dispersed, Water-Dispersed

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		
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	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	n
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	n
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	n
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		
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		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n

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	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	n
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		
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)		
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	y
703	Propagules likely to disperse as a produce contaminant		
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

**Supporting Data:**

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	[No evidence] "Arid areas of Western Australia, western and southern Northern Territory, northern South Australia and north-western New South Wales."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	NA

201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	High
	Source(s)	Notes
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	"Arid areas of Western Australia, western and southern Northern Territory, northern South Australia and north-western New South Wales."

202	Quality of climate match data	
	Source(s)	Notes
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	

203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	"Arid areas of Western Australia, western and southern Northern Territory, northern South Australia and north-western New South Wales."
	VIRBOGA. (2020). <i>Melaleuca glomerata</i> . <a href="https://www.virboga.de/Melaleuca_glomerata.htm">https://www.virboga.de/Melaleuca_glomerata.htm</a> . [Accessed 4 May 2020]	"Climate: sub-tropical"
	Australian Native Plants. (2020). <i>Melaleuca glomerata</i> . <a href="https://www.australianplants.com/plants.aspx?id=1383">https://www.australianplants.com/plants.aspx?id=1383</a> . [Accessed 4 May 2020]	"Frost: Frost Tolerant 25F-18F (-8C)"

Qsn #	Question	Answer
204	<b>Native or naturalized in regions with tropical or subtropical climates</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L. (Myrtaceae) in northern and eastern Australia. 2. <i>Austrobaileya</i> , 2(2), 131-146	"Arid areas of Western Australia, western and southern Northern Territory, northern South Australia and north-western New South Wales."
	Carrick, J., & Chorney, K. (1979). A review of <i>Melaleuca</i> L. (Myrtaceae) in South Australia. <i>Journal of the Adelaide Botanic Garden</i> , 1(5), 281-319	"Western Australia, Northern Territory, New South Wales and South Australia."
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No records of naturalization

205	<b>Does the species have a history of repeated introductions outside its natural range?</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). <i>Germplasm Resources Information Network (GRIN-Taxonomy)</i> . National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed ]	No evidence of widespread cultivation outside native range

301	<b>Naturalized beyond native range</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). <i>Germplasm Resources Information Network (GRIN-Taxonomy)</i> . National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 4 May 2020]	No evidence
	Imada, C. (2019). <i>Hawaiian Naturalized Vascular Plants Checklist</i> (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence to date

302	<b>Garden/amenity/disturbance weed</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

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

Qsn #	Question	Answer
304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	y
	Source(s)	Notes
	Weber, E. 2017. Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Melaleuca quinquenervia ... In Florida, melaleuca invades pine flatwoods, sawgrass marshes, cypress swamps and disturbed wet sites. It is considered as a transformer species and is especially threatening the sawgrass marshes of the Florida Everglades (Dray et al., 2006). Native plants are crowded out and the tree diminishes habitat for wildlife; the tree provides little food for birds and mammals (Langeland and Craddock Burks, 1998; Julian et al., 2012). Once established, tree islands are built and it transforms sawgrass marshes into forest habitats with a strongly impoverished species diversity of plants and animals (Center et al., 2012). The same mechanisms lead to reduced species richness in wetlands of Puerto Rico and the Bahamas (Pratt et al., 2005, 2007)."
	Brophy J.J., Craven L.A. and Doran J.C. (2013). Melaleucas: their botany, essential oils and uses. ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"Melaleuca species can seed profusely and there are instances in Australia where they have escaped cultivation and naturalised to become invasive and troublesome weeds, especially where periodic fires provide a suitable seedbed. Species that are reported to have naturalised include <i>M. armillaris</i> , <i>M. bracteata</i> , <i>M. decussata</i> , <i>M. diosmifolia</i> , <i>M. ericifolia</i> (per root suckers), <i>M. halmaturorum</i> , <i>M. hypericifolia</i> , <i>M. incana</i> , <i>M. lanceolata</i> , <i>M. leucadendra</i> , <i>M. linariifolia</i> , <i>M. microphylla</i> , <i>M. nesophila</i> , <i>M. parvistaminea</i> , <i>M. pentagona</i> , <i>M. quinquenervia</i> , <i>M. styphelioides</i> , <i>M. viminalis</i> and <i>M. viminea</i> (Lazarides et al. 1997; Randall 2002; Richardson et al. 2011; Wiersema and León 2013)."

Qsn #	Question	Answer
401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	[No evidence] "Shrub to 8 m high. Bark layered, papery. Branchlets pubescent at length glabrescent. Leaves scattered, flat, linear obovate, rarely narrowly obovate, acute, cuspidate, cuneate at base, 10-50 mm long, 1-4 mm wide, densely pubescent, sometimes glabrescent, usually 3-veined obscure, oil glands usually visible with lens; petioles very short or absent. Inflorescence a few to many-flowered dense, pseudo-pedunculate axillary or terminal head; flowers single within each bract; rachis pubescent, growing out after anthesis; bracts rarely present, broadly elliptical, acuminate, about 1 mm long, caducous; bracteoles absent. Calyx tube turbinate or cup-shaped, 1.5-2 mm long and wide, pubescent, lobes semicircular to 0.5 mm long, pubescent, with or without narrow margins. Petals white, nearly circular; shortly clawed, 1.5- 2 mm long. Stamens white to yellow, glabrous; claw 0.5-1.5 mm long; filaments 4-9 attached to the margin of each claw, free part to 5 mm long. Style 4-7 mm long, glabrous; stigma small. Ovary about 1 mm long, pubescent above. Fruit ovoid truncate, angular at base, 1.5- 2.5 mm long and wide, orifice about 1 mm diam., calyx lobes absent; in globular clusters."

402	Allelopathic	
	Source(s)	Notes
	Ojha, S., & Bhattacharjee, A. (2013). Evaluation of allelopathic potential of an aromatic exotic tree, <i>Melaleuca leucadendron</i> L. <i>African Journal of Plant Science</i> , 7(11), 558-560	Unknown. Allelopathy documented in genus

403	Parasitic	n
	Source(s)	Notes
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	"Shrub to 8 m high." [Myrtaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Lundie-Jenkins, G. (1993). Ecology of the rufous hare-wallaby, <i>Lagorchestes hirsutus</i> Gould (Marsupialia: Macropodidae) in the Tanami Desert, Northern Territory. I. Patterns of habitat use. <i>Wildlife Research</i> , 20(4), 457-476	"Appendix. Arbitrary weights assigned to non-spinifex plants on the basis of their importance in diet of <i>L. hirsutus</i> as determined in Lundie.Jenkins et al. (1993a)" [Melaleuca glomerate palatable to the rufous hare-wallaby]
	Knight, A. 2007. A Guide to Poisonous House and Garden Plants. CRC Press, Boca Raton, FL	[Generic description. Other members of genus unpalatable] "Animals are unlikely to eat the leaves of the plant because of the strong pungent odor of the leaves. Most animal poisoning from <i>Melaleuca</i> arises from the application of the oil to the skin and hair coat as a means of cleaning the hair or as a treatment for various dermatologic diseases including ectoparasites."

Qsn #	Question	Answer
	Dorges, B., Heucke, J., & Dance, R. (2003). The palatability of Central Australian plant species to camels. Technote No. 116. Department of Primary Industry, Fisheries and Resources, Northern Territory Government, Alice Springs	Melaleuca glomerata - Palatability index = 3 common food plant

405	Toxic to animals	n
	Source(s)	Notes
	Lundie-Jenkins, G. (1993). Ecology of the rufous hare-wallaby, <i>Lagorchestes hirsutus</i> Gould (Marsupialia: Macropodidae) in the Tanami Desert, Northern Territory. I. Patterns of habitat use. <i>Wildlife Research</i> , 20(4), 457-476	[No evidence] "Appendix. Arbitrary weights assigned to non-spinifex plants on the basis of their importance in diet of <i>L. hirsutus</i> as determined in Lundie.Jenkins et al. (1993a)" [Melaleuca glomerata palatable to the rufous hare-wallaby]
	Dorges, B., Heucke, J., & Dance, R. (2003). The palatability of Central Australian plant species to camels. Technote No. 116. Department of Primary Industry, Fisheries and Resources, Northern Territory Government, Alice Springs	[No evidence] Melaleuca glomerata - Palatability index = 3 common food plant
	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
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	[Susceptibility of Melaleuca glomerata not specified] "A wide range of insects causing damage to leaves, stems and roots of various Melaleuca species—including suckers (e.g. bugs, psyllids, froghoppers, scales, galls and thrips) and chewing pests (e.g. sawflies, caterpillars, beetles and borers)—has been described by Elliot and Jones (1982, 1983), Elliot et al. (1998) and Jones and Elliot (1986), who also give methods of control."
	WRA Specialist. (2020). Personal Communication	Unknown if Melaleuca glomerata could serve as a host to the fungus <i>Austropuccinia psidii</i> , but this pathogen is already present in the Hawaiian Islands and has been documented on a fairly wide host range of native and non-native plants. The cultivation of Melaleuca glomerata is therefore unlikely to significantly affect the distribution of <i>Austropuccinia psidii</i> .

Qsn #	Question	Answer
407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"Earlier reports implicating <i>M. quinquenervia</i> in southern Florida as the cause of serious allergic reactions and acute respiratory problems in humans (Geary 1988) have been shown to be false in a detailed medical study involving more than 1,000 subjects (Stablein et al. 2002)." [No evidence that <i>M. glomerata</i> is toxic or allergenic]
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	[Unknown. No specific evidence that <i>M. glomerata</i> increases fire risk, but it does occur in arid areas and could provide fuel in fire prone regions] "Many melaleucas are highly fire-tolerant during all but the early seedling stages before a thick protective layer of bark has formed. Fire-ravaged individuals regenerate through stimulation of epicormic buds under the thick bark to sprout vigorously after fire in a process called coppicing (Figure 14). Populations may expand through fire-induced release of seed from Serotinous capsules on the trees and stimulation of germination of seed in soil seedbanks."

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	Notes
	Australian Native Plants. (2020). <i>Melaleuca glomerata</i> . <a href="https://www.australianplants.com/plants.aspx?id=1383">https://www.australianplants.com/plants.aspx?id=1383</a> . [Accessed 5 May 2020]	"Exposure: Full Sun"
	Landscaper's Companion. (2020). <i>Melaleuca glomerata</i> . <a href="https://landscaperscompanion.com/simple_plants/9670-melaleuca-glomerata">https://landscaperscompanion.com/simple_plants/9670-melaleuca-glomerata</a> . [Accessed 5 May 2020]	"Part Sun to Full Sun"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"This species should be more widely grown in temperate regions, both dry and semi-humid, as it occurs on a wide range of soil types."
	Australian Native Plants. (2020). <i>Melaleuca glomerata</i> . <a href="https://www.australianplants.com/plants.aspx?id=1383">https://www.australianplants.com/plants.aspx?id=1383</a> . [Accessed 4 May 2020]	"Tolerant of most well-drained soils and situations, including alkaline soils, heavy frosts and extended dry periods."

411	Climbing or smothering growth habit	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	"Shrub to 8 m high."

412	Forms dense thickets	y
	<b>Source(s)</b>	<b>Notes</b>
	Hornsby, P. (1997). Records of birds seen at Brindana Gorge, in the North Flinders Ranges, South Australia. <i>South Australian Ornithologist</i> , 32, 118-127	[Dense thickets of <i>Melaleuca glomerata</i> reported in this study on birds] "This study area was approximately 1.5 sq. km, with the habitat comprising the creekline with a few river red gums <i>Eucalyptus camaldulensis</i> var. <i>obtusata</i> and some dense thickets of inland paper-bark <i>Melaleuca glomerata</i> . Despite these differences, some comparisons between the two surveys have been made."
	Friedel, M. H. (1981). Potential problems with tree and shrub regeneration in central Australia. Pp. 75-85 In working papers 3rd Biennial Conference. Australian Rangeland Society, Australia	[Reported to suppress pasture species] "In waterways and areas subject to inundation throughout the Alice Springs region, <i>Eucalyptus camaldulensis</i> (river gum) and <i>E. microtheca</i> (coolibah) have formed dense stands in some instances. In the northwest region of saltlakes and limestone subsoils, <i>Melaleuca glomerata</i> (tea-tree) seedlings have invaded some alluvial plains and largely suppressed pasture species."

501	Aquatic	n
	<b>Source(s)</b>	<b>Notes</b>
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	[Terrestrial] "Shrub to 8 m high." ... "Arid areas of Western Australia, western and southern Northern Territory, northern South Australia and north-western New South Wales."

502	Grass	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 1 May 2020]	Family: Myrtaceae Subfamily: Myrtoideae Tribe: Melaleuceae

503	Nitrogen fixing woody plant	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 1 May 2020]	Family: Myrtaceae Subfamily: Myrtoideae Tribe: Melaleuceae

504	<b>Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)</b>	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L. (Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	"Shrub to 8 m high."

601	Evidence of substantial reproductive failure in native habitat	n
	<b>Source(s)</b>	<b>Notes</b>
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	[No evidence] "Western Australia, Northern Territory, South Australia, Queensland, New South Wales: widespread in the arid zone of Western Australia, Northern Territory and South Australia; in Queensland and New South Wales in the far south-west and far north-west, respectively."

602	Produces viable seed	y
	<b>Source(s)</b>	<b>Notes</b>
	Australian Native Plants. (2020). <i>Melaleuca glomerata</i> . <a href="https://www.australianplants.com/plants.aspx?id=1383">https://www.australianplants.com/plants.aspx?id=1383</a> . [Accessed 6 May 2020]	"Seeds (online only): \$7.00" [Seeds commercially available]
	Erickson, T. E. (2015). Seed dormancy and germination traits of 89 arid zone species targeted for mine-site restoration in the Pilbara region of Western Australia. PhD Dissertation. University of Western Australia, Crawley WA	"Table 2.1. Characteristics of the 89 species present in this study including the current nomenclature (Western_Australian_Herbarium 1998 -), estimated viability utilised in the germination experiments, and plant- and seed-based traits used for classifying dormancy status and germination signatures (GS) per species." [Melaleuca glomerata - Viability % = 95.3]
	Sweedman, L. & Merritt, D. 2006. <i>Australian seeds: a guide to their collection, identification and biology</i> . Csiro Publishing, Collingwood, Australia	Melaleuca glomerata - M Mean time to germinate = 20 days

603	Hybridizes naturally	
	<b>Source(s)</b>	<b>Notes</b>
	Craven, L. A. (2006). New combinations in <i>Melaleuca</i> for Australian species of <i>Callistemon</i> (Myrtaceae). <i>Novon: A Journal for Botanical Nomenclature</i> , 16(4), 468-475	[Unknown. Documented in other species] "Hybridization in nature has been noted in <i>Melaleuca</i> and <i>Callistemon</i> in the following instances: in the <i>M. leucadendra</i> species group (Blake, 1968; Cumming, pers. comm.); between <i>M. bracteata</i> F. Mueller and <i>M. styphelioides</i> Smith (Lepschi, pers. comm.); between diverse species of the <i>M. scabra</i> R. Brown group, i.e., <i>M. leuropoma</i> Craven and <i>M. systema</i> Craven (Craven, pers. obs.); between several species of the <i>M. uncinata</i> R. Brown complex (Broadhurst et al., in prep.); between <i>M. aspalathoides</i> Schauer and <i>M. holosericea</i> Schauer (Lepschi, pers. comm.); between <i>M. barlowii</i> Craven and <i>M. nematophylla</i> F. Mueller ex Craven (Craven, pers. obs.); between diverse species of the <i>M. laxiflora</i> Turczaninow group (Craven, pers. obs.); between <i>C. citrinus</i> (Curtis) Skeels and <i>C. subulatus</i> Cheel (Craven, pers. obs.); and is suggested between <i>M. alternifolia</i> (Maiden & Betche) Cheel and <i>M. linariifolia</i> Smith (Butcher et al., 1994, 1995)."

Qsn #	Question	Answer
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas</i> : their botany, essential oils and uses. ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	[Unknown. Hybrids documented in genus, but no evidence for <i>M. glomerata</i> ] "Natural hybridisation in <i>Melaleuca</i> appears to be restricted to within groups of closely related species, although there has been anecdotal mention of wider crosses occurring spontaneously in cultivated melaleucas. Hybridisation occurs very widely across the genus and examples noted in both the field and the herbarium have been listed by Craven (2006). In all, over 20 examples are known. It is expected that, as comprehensive DNA studies are undertaken on species complexes within the genus, more will become known as to the extent of past and (relatively) recent hybridisation events."

604	Self-compatible or apomictic	
	Source(s)	Notes
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas</i> : their botany, essential oils and uses. ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	[Unknown. Possibly No] "Barlow and Forrester (1984) also studied self-incompatibility in various <i>Melaleuca</i> species, although not in <i>M. alternifolia</i> , and found that self-pollen tubes do not penetrate past the base of the style."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas</i> : their botany, essential oils and uses. ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"Melaleucas are mostly insect-pollinated."
	Carrick, J., & Chorney, K. (1979). A review of <i>Melaleuca</i> L. (Myrtaceae) in South Australia. <i>Journal of the Adelaide Botanic Garden</i> , 1(5), 281-319	[No evidence] "Flowers in dense globular terminal heads, the axis growing out into a leafy branch after flowering, rachis pubescent; bracts broadly ovate, about 1.5 mm broad and 1 mm long, pubescent; bracteoles not seen; calyx tube sessile by a broad flat base, pubescent, about 1 mm long, lobes broadly ovate, to about 0.5 mm long, slightly broader than long; petals broadly ovate, about 1.5 mm long and broad, claw very short; stamens yellow, claw about 1 mm long bearing 4-8 filaments 2.5-4.5 mm long in two series at the broad apex; style about 4 mm long, scarcely expanded at the apex, stigma convex."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas</i> : their botany, essential oils and uses. ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"Some melaleuca species have the ability to root sucker, and through root extension and interconnectivity form dense clumps of single clones." [Several species mentioned, but no evidence for <i>M. glomerata</i> ]

607	Minimum generative time (years)	
	Source(s)	Notes

Qsn #	Question	Answer
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	[Possibly 2-4+ years] "Flowering starts early in many species. For example, <i>M. alternifolia</i> planted in breeding populations in northern New South Wales set the first flower buds as early as 2 years after planting. However, the first 'reasonable' flowering (defined as 45% of trees) did not occur until almost 4 years from plantings within the species' natural range (Doran et al. 2002). In <i>M. alternifolia</i> , a cold winter (minimum temperatures below 5 °C) appears to stimulate floral bud formation while good spring rains are needed to support a good flowering and retention of the developing fruit (Baskorowati et al. 2010a, c)."

701	<b>Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Melaleuca seeds are small but lack means of external attachment. They could hypothetically be transported in soil attached to vehicles, footwear or equipment, but evidence is lacking at this time

702	<b>Propagules dispersed intentionally by people</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"This species should be more widely grown in temperate regions, both dry and semi-humid, as it occurs on a wide range of soil types. It could well be that selected forms will prove to be adaptable for use in shelter belts etc. and in domestic gardens. Although the individual inflorescences are not particularly attractive, a plant in full flower can be very pleasing to the eye."

703	<b>Propagules likely to disperse as a produce contaminant</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	No evidence found, but not widely cultivated outside native range. Wind-dispersed seeds could potentially become a contaminant if grown in proximity to other plants or crops

704	<b>Propagules adapted to wind dispersal</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Carrick, J., & Chorney, K. (1979). A review of <i>Melaleuca</i> L. (Myrtaceae) in South Australia. <i>Journal of the Adelaide Botanic Garden</i> , 1(5), 281-319	"Fruit small, sessile, sometimes embedded in the thickened stem; capsule enclosed in the enlarged woody calyx tube, opening loculicidally at the summit in three valves; perfect seeds few." [Generic description. Small seeds likely dispersed by wind]

705	<b>Propagules water dispersed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"Recorded as occurring in fringing woodland along freshwater and saline watercourses and around clay pans, open eucalypt shrubland, spinifex grassland, on sand, sand over limestone, alluvial soil, gravelly sand, sandstone gorges, sand over cracking clay, calcareous soils, and rock crevices." [Distribution suggests seeds would be secondarily dispersed by water]

706	Propagules bird dispersed	n
	Source(s)	Notes
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	"Fruit ovoid truncate, angular at base, 1.5- 2.5 mm long and wide, orifice about 1 mm diam., calyx lobes absent; in globular clusters." [No evidence]

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	<i>Melaleuca</i> seeds are small but lack means of external attachment. They could hypothetically be transported in soil attached to animals, but evidence is lacking at this time

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Byrnes, N. (1985). A revision of <i>Melaleuca</i> L.(Myrtaceae) in northern and eastern Australia, 2. <i>Austrobaileya</i> , 2(2), 131-146	"Fruit ovoid truncate, angular at base, 1.5- 2.5 mm long and wide, orifice about 1 mm diam., calyx lobes absent; in globular clusters." [Fruiting capsules unlikely to be consumed, or seeds to survive gut passage]

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas: their botany, essential oils and uses</i> . ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"Fruit 1.5– 2.5 mm long, the calyx lobes weathering away; cotyledons obvolvate." [Densities unknown]

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Erickson, T. E. (2015). Seed dormancy and germination traits of 89 arid zone species targeted for mine-site restoration in the Pilbara region of Western Australia. PhD Dissertation. University of Western Australia, Crawley WA	"Table 2.1. Characteristics of the 89 species present in this study" [Unknown. <i>Melaleuca glomerata</i> seeds classified as non-dormant]

803	Well controlled by herbicides	y
	Source(s)	Notes

Qsn #	Question	Answer
	Munger, G. T. (2005). <i>Melaleuca quinquenervia</i> . In: Fire Effects Information System, [Online]. USDA, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. <a href="https://www.fs.fed.us/database/feis/plants/tree/maggra/all.html">https://www.fs.fed.us/database/feis/plants/tree/maggra/all.html</a> . [Accessed 6 May 2020]	[ <i>Melaleuca quinquenervia</i> effectively controlled by herbicides] "Chemical: Herbicides are among the most effective and widely used tools for controlling <i>melaleuca</i> in peninsular Florida [40]. Herbicides are most effective when integrated within a suite of control measures and strategies."
	WRA Specialist. (2020). Personal Communication	No information on herbicide efficacy and chemical control of this species. However, methods to control the invasive <i>Melaleuca quinquenervia</i> would presumably be effective for controlling <i>Melaleuca glomerata</i> if required

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	Brophy J.J., Craven L.A. and Doran J.C. (2013). <i>Melaleucas</i> : their botany, essential oils and uses. ACIAR Monograph No. 156. Australian Centre for International Agricultural Research, Canberra	"Many <i>melaleucas</i> are highly fire-tolerant during all but the early seedling stages before a thick protective layer of bark has formed. Fire-ravaged individuals regenerate through stimulation of epicormic buds under the thick bark to sprout vigorously after fire in a process called coppicing" [Ability of <i>M. glomerata</i> to coppice unknown]
	Australian Native Plants. (2020). <i>Melaleuca glomerata</i> . <a href="https://www.australianplants.com/plants.aspx?id=1383">https://www.australianplants.com/plants.aspx?id=1383</a> . [Accessed 6 May 2020]	"Plants respond to pruning and can be grown as a screen or for specimen planting."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Atlas of Living Australia. (2020). <i>Melaleuca</i> L. <a href="https://bie.ala.org.au">https://bie.ala.org.au</a> . [Accessed 4 May 2020]	" <i>Melaleucas</i> are also susceptible to myrtle rust ( <i>Puccinia psidii</i> ) which can result in damage to soft plant material and the death of highly susceptible hosts. Myrtle rust is common in eastern Australia, including Tasmania and has been detected in the Tiwi Islands.[25]"
	WRA Specialist. (2020). Personal Communication	Unknown. <i>Austropuccinia psidii</i> is present in the Hawaiian Islands, and may affect <i>Melaleuca glomerata</i> , as it does other <i>Melaleuca</i> species

**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Able to grow in tropical climates
- Other *Melaleuca* species are invasive
- Tolerates many soil types
- Forms dense thickets in native range (may suppress other vegetation)
- Reproduces by seeds
- Seeds dispersed by wind, water and intentionally by people

Low Risk Traits

- No reports of invasiveness or naturalization), but no evidence of widespread introduction outside native range
- Unarmed (no spines, thorns, or burrs)
- Palatable to wallabies, camels and possibly other grazing animals
- Not reported to spread vegetatively
- Herbicides may provide effective control

Second Screening Results for Tree/tree-like shrubs

(A) Shade tolerant or known to form dense stands?> Yes. Forms dense thickets in native range

(B) Bird or clearly wind-dispersed?> Dispersed by wind

(C) Life cycle <4 years? Time to maturity unknown

Outcome = Evaluate