

Taxon: <i>Eucalyptus formanii</i> C. A. Gardner	Family: Myrtaceae
Common Name(s): die hardy mallee feather gum Forman's eucalyptus Forman's mallee	Synonym(s):

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 27 Jan 2021
WRA Score: -3.0	Designation: L	Rating: Low Risk

Keywords: Temperate Tree, Lignotuber, Non-toxic, Wind-Dispersed, Coppices

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)	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	n
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	n
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	?
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		
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		

Qsn #	Question	Answer Option	Answer
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	n
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	n
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	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed	y=1, n=-1	n
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/m ²)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
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)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Atlas of Living Australia. (2021). <i>Eucalyptus formanii</i> C.A.Gardner. https://bie.ala.org.au . [Accessed 25 Jan 2021]	[No evidence of domestication] " <i>Eucalyptus formanii</i> was first formally described in 1943 by Charles Gardner in the Journal of the Royal Society of Western Australia. The type specimen was collected in sand dunes near the Die Hardy Range, 175 km (109 mi) north of Southern Cross by the geologists Francis Gloster Forman and Robert Sackville Matheson.[6][7][8][9] The specific epithet (<i>formanii</i>) honours "Francis Gloster Forman, Government Geologist of Western Australia, who brought me [C.A.Gardner] the first specimens of this plant." [9] The Die Hardy Ranges, or Mount Geraldine, is a range of hills north of Mount Jackson where there are abandoned gold mines. In 2010, the range was declared a nature reserve.[10] "

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2021). 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"	Intermediate
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 25 Jan 2021]	"Native Australasia AUSTRALIA: Australia [Western Australia (s.w.)]"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 25 Jan 2021]	

203	Broad climate suitability (environmental versatility)	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Plant This. (2021). <i>Eucalyptus formanii</i> . http://www.plantthis.com.au . [Accessed 26 Jan 2021]	"Hardiness zones: 9-10"
	Dave's Garden. (2021). <i>Eucalyptus</i> Species, Die-Hardy Mallee, Forman's <i>Eucalyptus</i> , Feather Gum - <i>Eucalyptus formanii</i> . https://davesgarden.com/guides/pf/go/192149/ . [Accessed 26 Jan 2021]	"Hardiness: USDA Zone 8a: to -12.2 °C (10 °F) USDA Zone 8b: to -9.4 °C (15 °F) USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F) USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)"

204	Native or naturalized in regions with tropical or subtropical climates	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 25 Jan 2021]	"Native Australasia AUSTRALIA: Australia [Western Australia (s.w.)]"
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

205	Does the species have a history of repeated introductions outside its natural range?	?
	Source(s)	Notes
	Irish, M. (2008). Trees and Shrubs for the Southwest: Woody Plants for Arid Gardens. Timber Press, Portland, OR	[Arizona] "It is one of the few eucalyptuses that, once established, tolerates growing on natural rainfall in the Phoenix area, although monthly watering keeps it looking more full and lush."
	Ritter, M. (2014). Field Guide to the Cultivated Eucalypts (Myrtaceae) and How to Identify Them. Annals of the Missouri Botanical Garden, 99(4), 642-687	[California] "Voucher: U.S.A. California, Yost, Ritter & Sanders 301 (OBI)."

301	Naturalized beyond native range	n
	Source(s)	Notes
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	Ritter, M. (2014). Field Guide to the Cultivated Eucalypts (Myrtaceae) and How to Identify Them. Annals of the Missouri Botanical Garden, 99(4), 642-687	No evidence

Qsn #	Question	Answer
302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	Simberloff, D. & Rejmánek, M. (2011). Encyclopedia of Biological Invasions. University of California Press, Berkeley & Los Angeles	No evidence

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
	Simberloff, D. & Rejmánek, M. (2011). Encyclopedia of Biological Invasions. University of California Press, Berkeley & Los Angeles	No evidence

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
	Simberloff, D. & Rejmánek, M. (2011). Encyclopedia of Biological Invasions. University of California Press, Berkeley & Los Angeles	No evidence

305	Congeneric weed	y
	Source(s)	Notes
	Forsyth, G. G., Richardson, D. M., Brown, P. J., & Van Wilgen, B. W. (2004). A rapid assessment of the invasive status of Eucalyptus species in two South African provinces: working for water. South African Journal of Science, 100(1-2), 75-77	"Gum trees, or eucalypts (<i>Eucalyptus</i> species), have been targeted for invasive alien plant clearing programmes in many parts of South Africa. This has caused some dissatisfaction where the species concerned also have useful characteristics, and stakeholders contend that some of these useful species are not invasive. A rapid assessment of the invasive status of Eucalyptus species at 82 sites in South Africa (54 in the Western Cape and 28 in Mpumalanga) indicated that only Red River gum (<i>E. camaldulensis</i>) and flooded gum (<i>E. grandis</i>) are clearly invasive."

Qsn #	Question	Answer
	Simberloff, D. & Rejmánek, M. (2011). Encyclopedia of Biological Invasions. University of California Press, Berkeley & Los Angeles	"Over 800 species of eucalypts (Angophora, Corymbia, and Eucalyptus) are native to Australia and a few Pacific islands. These genera include some of the most important solid timber and paper pulp forestry trees in the world. Besides pines, eucalypts are the most commonly and widely cultivated exotic trees. Almost 20 million ha (200,000 km ²) of eucalyptus plantations exist in tropical, subtropical, and temperate countries. In many countries, eucalypts are the most common and conspicuous nonnative trees. Over 70 species are naturalized (reproduce and maintain their populations) outside their native ranges. However, given the extent of cultivation, eucalypts are markedly less invasive than many other widely cultivated trees and shrubs. Reasons for this relatively low invasiveness are still not completely understood. Conclusions about positive or negative environmental and economic impacts of eucalypts are often anecdotal, highly controversial, and context-dependent."
	Weber, E. 2017. Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[<i>Eucalyptus globulus</i>] "The tree invades neighbouring plant communities from initial plantings. By building dense bushes and forests, it displaces native plant species and their associated wildlife with extremely species-poor stands of blue gum. The trees produce a thick litter layer consisting of leaves, bark strips and branch lees, preventing germination and establishment of understorey plants. This is aided by allelochemicals released from leaves (Bossard et al., 2000). Litter of blue gum is highly flammable and the trees accumulate large amounts of litter, increasing fire hazards. Drifting burning material is common in eucalyptus stands, thus the potential to ignite spot fires is very high"
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	A large number of species are cited as naturalized and/or weeds

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Ritter, M. (2014). Field Guide to the Cultivated Eucalypts (Myrtaceae) and How to Identify Them. Annals of the Missouri Botanical Garden, 99(4), 642-687	[No evidence] "Mallees or shrubs, rarely trees; bark rough, wavy, fibrous, brown or gray; branchlets not glaucous; branchlet pith without oil glands. Leaves alternate, concolorous, linear, , 0.5 cm wide, held erect, glossy. Inflorescences axillary umbels; buds 7 or 9 per umbel, pedicellate; operculum conical or beaked, operculum scar present. At anthesis, flowers white. Fruits pedicellate, cup-shaped; valves exserted."

Qsn #	Question	Answer
402	Allelopathic	
	Source(s)	Notes
	Coppen, J.J.W. (2002). <i>Eucalyptus: The Genus Eucalyptus</i> . Taylor and Francis, London	[Potentially. Members of genus may possess allelopathic chemicals] "Trees of the genus <i>Eucalyptus</i> are frequently surrounded by a grass-free zone and this has led to a search for possible allelochemicals in <i>Eucalyptus</i> species. The results to date indicate that eucalypts may well be a practical, commercial source of such chemicals in the future. In its simplest form this might entail use of the powdered leaves as a natural herbicide. Alternatively, and with a greater understanding of their mode of action, the allelochemicals themselves or suitable derivatives could be used as selective herbicides."

403	Parasitic	n
	Source(s)	Notes
	Ritter, M. (2014). <i>Field Guide to the Cultivated Eucalypts (Myrtaceae) and How to Identify Them</i> . <i>Annals of the Missouri Botanical Garden</i> , 99(4), 642-687	"Mallees or shrubs, rarely trees; bark rough, wavy, fibrous, brown or gray; branchlets not glaucous; branchlet pith without oil glands." [Myrtaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

405	Toxic to animals	n
	Source(s)	Notes
	Plant This. (2021). <i>Eucalyptus formanii</i> . http://www.planthis.com.au . [Accessed 27 Jan 2021]	"No hazards currently listed."
	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
	Wagstaff, D.J. 2008. <i>International poisonous plants checklist: an evidence-based reference</i> . CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Backyard Gardener. (2021). <i>Eucalyptus formanii</i> (Gum). https://www.backyardgardener.com . [Accessed 26 Jan 2021]	"Important Info : Most <i>Eucalyptus</i> are drought tolerant and have very few pests. The eucalyptus beetle poses the greatest threat with oval-shaped holes being one of the signs of infestation."

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

Qsn #	Question	Answer
	Plant This. (2021). <i>Eucalyptus formanii</i> . http://www.plantthis.com.au . [Accessed 27 Jan 2021]	"No hazards currently listed."
	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
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Elith, J. & Bidwell, S. (2004). Identification and Assessment of Nationally Threatened Woodlands. Description of Ecological Communities: Arid Eucalypt Woodlands. The University of Melbourne	[Flammability of <i>Eucalyptus formanii</i> unspecified] "Many of the eucalypts in the goldfields region are sensitive to fire. Trees die after hot fires, however, seed germination is enhanced by fire. Fire management in these areas requires investigation."

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	Notes
	Irish, M. (2008). Trees and Shrubs for the Southwest: Woody Plants for Arid Gardens. Timber Press, Portland, OR	"Exposure: Full sun in all areas."
	Backyard Gardener. (2021). <i>Eucalyptus formanii</i> (Gum). https://www.backyardgardener.com . [Accessed 26 Jan 2021]	"Light Range: Part Sun to Full Sun"
	Desert Tropicals. (2021). <i>Eucalyptus formanii</i> . https://www.desert-tropicals.com/Plants/Myrtaceae/Eucalyptus_formanii.html . [Accessed 27 Jan 2021]	"Sun Exposure: Full sun"
	Plant This. (2021). <i>Eucalyptus formanii</i> . http://www.plantthis.com.au . [Accessed 26 Jan 2021]	"Sunlight: hot overhead sun"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	Source(s)	Notes
	Atlas of Living Australia. (2021). <i>Eucalyptus formanii</i> C.A.Gardner. https://bie.ala.org.au . [Accessed 26 Jan 2021]	"Die Hardy mallee is found on ironstone slopes north of Bullfinch in the Coolgardie, Murchison and Yalgoo biogeographic regions of Western Australia, where it grows in sandy soils. It forms part of low woodland communities that cover a substantial part of the base of the Mount Manning Nature Reserve, occurring on flat sandy plains in broad valleys with sandy loam soil types."
	Irish, M. (2008). Trees and Shrubs for the Southwest: Woody Plants for Arid Gardens. Timber Press, Portland, OR	"Forman's eucalyptus grows best in well-drained soils, but it may be subject to root rots when there is too much moisture."
	Backyard Gardener. (2021). <i>Eucalyptus formanii</i> (Gum). https://www.backyardgardener.com . [Accessed 26 Jan 2021]	"pH Range: 5.5 to 6.5 Soil Range: Mostly Sand to Clay Loam "

Qsn #	Question	Answer
	Plant This. (2021). <i>Eucalyptus formanii</i> . http://www.plantthis.com.au . [Accessed 26 Jan 2021]	"Soil: ordinary soil, enriched soil, mildly acidic to mildly alkaline"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Ritter, M. (2014). Field Guide to the Cultivated Eucalypts (Myrtaceae) and How to Identify Them. <i>Annals of the Missouri Botanical Garden</i> , 99(4), 642-687	"Mallees or shrubs, rarely trees; bark rough, wavy, fibrous, brown or gray; branchlets not glaucous; branchlet pith without oil glands."

412	Forms dense thickets	n
	Source(s)	Notes
	Gibson, N. (2004). Flora and vegetation of the eastern Goldfields ranges: Part 6. Mt Manning Range. <i>Journal of the Royal Society of Western Australia</i> , 87: 35-47	[A dominant component of sandplains, but no evidence of dense stands or monocultures] "Keighery et al. (1995) ascribe the vegetation of the Mt Manning Range to this vegetation system." ... "Pure <i>Acacia aneura</i> low woodlands occur on lower slopes on deep colluvial soils while the valleys are dominated by <i>Eucalyptus salubris</i> and/or <i>E. salmonophloia</i> woodland or by <i>Casuarina pauper</i> (syn <i>C. cristata</i>) low woodland around the base of the Mt Manning Range and on small rises of greenstone on the plain. The surrounding sandplain is dominated by <i>Eucalyptus formanii</i> over <i>Plectrachne rigidissima</i> ."
	Atlas of Living Australia. (2021). <i>Eucalyptus formanii</i> C.A.Gardner. https://bie.ala.org.au . [Accessed 26 Jan 2021]	[No evidence] "Die Hardy mallee is found on ironstone slopes north of Bullfinch in the Coolgardie, Murchison and Yalgoo biogeographic regions of Western Australia, where it grows in sandy soils. It forms part of low woodland communities that cover a substantial part of the base of the Mount Manning Nature Reserve, occurring on flat sandy plains in broad valleys with sandy loam soil types. The low woodlands on plains are made up of 10 m (33 ft) high trees over an understorey of <i>Triodia rigidissima</i> . The composition of the flora is complex with several intermediate strata of tall and low shrubs consisting of <i>Grevillea acuaria</i> , <i>Bossiaea walkeri</i> and various species of <i>Eremophila</i> . [2][4][11]"

501	Aquatic	n
	Source(s)	Notes
	Atlas of Living Australia. (2021). <i>Eucalyptus formanii</i> C.A.Gardner. https://bie.ala.org.au . [Accessed 25 Jan 2021]	[Terrestrial] "Die Hardy mallee is found on ironstone slopes north of Bullfinch in the Coolgardie, Murchison and Yalgoo biogeographic regions of Western Australia, where it grows in sandy soils. It forms part of low woodland communities that cover a substantial part of the base of the Mount Manning Nature Reserve, occurring on flat sandy plains in broad valleys with sandy loam soil types."

502	Grass	n
	Source(s)	Notes

Qsn #	Question	Answer
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 25 Jan 2021]	Genus: Eucalyptus Subgenus: Symphyomyrtus Section: Bisectae Family: Myrtaceae Subfamily: Myrtoideae Tribe: Eucalypteae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 25 Jan 2021]	Genus: Eucalyptus Subgenus: Symphyomyrtus Section: Bisectae Family: Myrtaceae Subfamily: Myrtoideae Tribe: Eucalypteae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Atlas of Living Australia. (2021). <i>Eucalyptus formanii</i> C.A.Gardner. https://bie.ala.org.au . [Accessed 25 Jan 2021]	" <i>Eucalyptus formanii</i> is a tree or mallee that typically grows to a height of 10 m (33 ft) and forms a lignotuber."
	Ritter, M. (2014). Field Guide to the Cultivated Eucalypts (Myrtaceae) and How to Identify Them. <i>Annals of the Missouri Botanical Garden</i> , 99(4), 642-687	"Mallees or shrubs, rarely trees; bark rough, wavy, fibrous, brown or gray; branchlets not glaucous; branchlet pith without oil glands."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Atlas of Living Australia. (2021). <i>Eucalyptus formanii</i> C.A.Gardner. https://bie.ala.org.au . [Accessed 26 Jan 2021]	"This eucalypt is classified as "Priority Four" by the Government of Western Australia Department of Parks and Wildlife,[4] meaning that is rare or near threatened." [Apparently due to limited distribution. No evidence of substantial reproductive failure found]

602	Produces viable seed	y
	Source(s)	Notes
	Desert Tropicals. (2021). <i>Eucalyptus formanii</i> . https://www.desert-tropicals.com/Plants/Myrtaceae/Eucalyptus_formanii.html . [Accessed 27 Jan 2021]	"Propagation: Seeds"
	Backyard Gardener. (2021). <i>Eucalyptus formanii</i> (Gum). https://www.backyardgardener.com . [Accessed 27 Jan 2021]	"Trees do very well planted from seed. Plant seeds in spring or summer keep shaded and water sparingly until 2 to 3 inches high."

Qsn #	Question	Answer
	Sweedman, L. & Merritt, D. 2006. Australian seeds: a guide to their collection, identification and biology. Csiro Publishing, Collingwood, Australia	<i>Eucalyptus formanii</i> M Mean time to germinate. = 18 days Q Quickest time to germinate = 12 days L Longest time to germinate = 28 days T Times sown = 11 samples R Recommended pre-treatment = None

603	Hybridizes naturally	
	Source(s)	Notes
	Doran, J. C. (2002). Genetic improvement of eucalypts With special reference to oil-bearing species. In J. J.W. Coppen (ed.). <i>Eucalyptus The Genus Eucalyptus</i> . Taylor & Francis	[Unknown. Possible within genus] "Hybridising ability: Griffin et al. (1988) reviewed the occurrence of natural and manipulated interspecific hybrids within the genus <i>Eucalyptus</i> , and confirmed the long-standing hypothesis that within sub-genera there are generally no strong barriers to the production of hybrid seed following cross pollination. Hybrids may be desirable because they are heterotic or because they combine traits that were not found together in either parental species (Griffin 1989b). Sites which are marginal for pure species have provided, so far, the most successful habitats for use of eucalypt hybrids. For example, hybrids of <i>E. grandis</i> with hardier species such as <i>E. urophylla</i> , <i>E. camaldulensis</i> and <i>E. tereticornis</i> are showing great promise on sites in South Africa which, because of drought, are marginal for growing pure <i>E. grandis</i> (Van Wyk et al. 1989)."

604	Self-compatible or apomictic	
	Source(s)	Notes
	Potts, B. M., & Gore, P. L. (1995). Reproductive biology and controlled pollination of <i>Eucalyptus</i> -a review. School of Plant Science, University of Tasmania, Hobart, Tasmania	[Unknown for <i>E. polyanthemos</i>] "Eucalypts are generally preferentially outcrossing (Pryor 1976; Griffin et al 1987), with high outcrossing rates (e.g. 0.69- 0.84 Moran and Bell 1983; Prober et al. 1990) maintained by varying degrees of self-fertility (Pryor 1976), aided by protandry (Griffin and Hand 1979; Fig. 3.2) and reinforced by selection against the products of self-fertilization in later stages of the life cycle (Potts et at. 1987; Hardner and Potts 1995). Self fertility Most species exhibit a marked reduction in seed yield following selfpollination compared to outcrossing, although within species there is considerable variation in the level of self-fertility (Pryor 1957; Pryor 1976; Table 4.2). In most of the species examined to date, the majority of individuals are partially self-fertile, but individuals range from fully self incompatible to fully self-fertile. Post-mating barriers to self-fertilization are thus rarely complete, and (Eldridge 1976) notes that "persistent attempts at artificial self-pollination have been successful to some degree on almost every tree tested".

605	Requires specialist pollinators	n
	Source(s)	Notes

Qsn #	Question	Answer
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed]	[Unspecialized] "Inflorescence axillary unbranched, peduncles rounded, 0.4–1 cm long, buds 7 or 9 per umbel, pedicels 0.2–0.3 cm long. Mature buds ovoid to fusiform (0.4–0.7 cm long, 0.25–0.3 cm wide), scar present, operculum conical to beaked (0.3–0.4 cm long), stamens inflexed, anthers cuneate-cuboid, adnate to filament apex (rigidly basifixed), dehiscing by sub-terminal pores, a few of the innermost stamens imperfectly formed, style long and straight, stigma tapered, locules 3 or 4, the placentae each with 4 vertical rows of ovules. Flowers creamy white."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed 27 Jan 2021]	[Coppices, but no evidence of vegetative spread] "Tree or mallee to 10 m tall. Forming a lignotuber. Bark rough over part or all of trunk extending to base of large limbs, fibrous to scaly or wavy-flaky, grey-brown, shedding on branches in scruffy ribbons to show smooth cream brown to pinkish grey. Branchlets lacking oil glands in the pith"

607	Minimum generative time (years)	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed 27 Jan 2021]	"Fruit pedicellate (pedicels 0.2–0.3 cm long), cupular to hemispherical, 0.3–0.4 cm long, 0.4–0.5 cm wide, disc level to descending, valves 3 or 4, more or less exerted. Seeds brown, 1–2 mm long, flattened-ovoid, dorsal surface furrowed longitudinally, scarcely reticulate, hilum ventral." [Small size could facilitate attachment on vehicles, other equipment or footwear, but no direct evidence of this occurring has been found]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Irish, M. (2008). Trees and Shrubs for the Southwest: Woody Plants for Arid Gardens. Timber Press, Portland, OR	"Forman's eucalyptus is a good species to blend into a large hedge or mixed shrub planting. It serves as a barrier, either visual or physical, within the garden, helping to define space in a larger garden."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes

Qsn #	Question	Answer
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed 27 Jan 2021]	"Tree or mallee to 10 m tall. Forming a lignotuber." "Fruit pedicellate (pedicels 0.2–0.3 cm long), cupular to hemispherical, 0.3–0.4 cm long, 0.4–0.5 cm wide, disc level to descending, valves 3 or 4, more or less exerted. Seeds brown, 1–2 mm long, flattened-ovoid, dorsal surface furrowed longitudinally, scarcely reticulate, hilum ventral." [No evidence]

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed 27 Jan 2021]	"Fruit pedicellate (pedicels 0.2–0.3 cm long), cupular to hemispherical, 0.3–0.4 cm long, 0.4–0.5 cm wide, disc level to descending, valves 3 or 4, more or less exerted. Seeds brown, 1–2 mm long, flattened-ovoid, dorsal surface furrowed longitudinally, scarcely reticulate, hilum ventral."
	Simberloff, D. & Rejmánek, M. (2011). Encyclopedia of Biological Invasions. University of California Press, Berkeley & Los Angeles	"Seeds of planted eucalypts are very small, but they have no adaptations for dispersal (wings or fleshy tissues) that would help them to proceed from local establishment (naturalization) to invasion. The passive release of seeds is undoubtedly aided by wind. However, all rigorous studies of eucalypt seed dispersal and seedling spatial distribution show that in general, seeds are dispersed over quite short distances."

705	Propagules water dispersed	n
	Source(s)	Notes
	Atlas of Living Australia. (2021). <i>Eucalyptus formanii</i> C.A.Gardner. https://bie.ala.org.au . [Accessed 27 Jan 2021]	"Die Hardy mallee is found on ironstone slopes north of Bullfinch in the Coolgardie, Murchison and Yalgoo biogeographic regions of Western Australia, where it grows in sandy soils. It forms part of low woodland communities that cover a substantial part of the base of the Mount Manning Nature Reserve, occurring on flat sandy plains in broad valleys with sandy loam soil types. The low woodlands on plains are made up of 10 m (33 ft) high trees over an understorey of <i>Triodia rigidissima</i> . The composition of the flora is complex with several intermediate strata of tall and low shrubs consisting of <i>Grevillea acuaria</i> , <i>Bossiaea walkeri</i> and various species of <i>Eremophila</i> . [2][4][11]" [Buoyancy of seeds unknown, but not naturally occurring in riparian areas]

706	Propagules bird dispersed	n
	Source(s)	Notes
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed 27 Jan 2021]	"Fruit pedicellate (pedicels 0.2–0.3 cm long), cupular to hemispherical, 0.3–0.4 cm long, 0.4–0.5 cm wide, disc level to descending, valves 3 or 4, more or less exerted. Seeds brown, 1–2 mm long, flattened-ovoid, dorsal surface furrowed longitudinally, scarcely reticulate, hilum ventral." [No evidence. Not fleshy-fruited]

707	Propagules dispersed by other animals (externally)	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed 27 Jan 2021]	"Fruit pedicellate (pedicels 0.2–0.3 cm long), cupular to hemispherical, 0.3–0.4 cm long, 0.4–0.5 cm wide, disc level to descending, valves 3 or 4, more or less exerted. Seeds brown, 1–2 mm long, flattened-ovoid, dorsal surface furrowed longitudinally, scarcely reticulate, hilum ventral." [No adaptations for external dispersal]

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed 27 Jan 2021]	"Fruit pedicellate (pedicels 0.2–0.3 cm long), cupular to hemispherical, 0.3–0.4 cm long, 0.4–0.5 cm wide, disc level to descending, valves 3 or 4, more or less exerted. Seeds brown, 1–2 mm long, flattened-ovoid, dorsal surface furrowed longitudinally, scarcely reticulate, hilum ventral." [No evidence of consumption or internal dispersal]

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Centre for Australian National Biodiversity Research. (2021). EUCLID Eucalypts of Australia Edition 4. https://apps.lucidcentral.org/euclid/text/intro/index.html . [Accessed 27 Jan 2021]	"Fruit pedicellate (pedicels 0.2–0.3 cm long), cupular to hemispherical, 0.3–0.4 cm long, 0.4–0.5 cm wide, disc level to descending, valves 3 or 4, more or less exerted. Seeds brown, 1–2 mm long, flattened-ovoid, dorsal surface furrowed longitudinally, scarcely reticulate, hilum ventral." [Densities unknown]

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. (2021) Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ . [Accessed 27 Jan 2021]	[<i>Eucalyptus formanii</i>] "Storage Behaviour: No data available for species. Of 360 known taxa of genus <i>Eucalyptus</i> , 100.00% Orthodox (p/?)"

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

Qsn #	Question	Answer
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Atlas of Living Australia. (2021). <i>Eucalyptus formanii</i> C.A.Gardner. https://bie.ala.org.au . [Accessed 25 Jan 2021]	[Coppices and possesses a lignotuber, from which the tree can regenerate] "Eucalyptus formanii is a tree or mallee that typically grows to a height of 10 m (33 ft) and forms a lignotuber." ... "Young plants and coppice regrowth have more or less sessile, linear leaves that are 20–45 mm (0.79–1.77 in) long and 2–4 mm (0.079–0.157 in) wide." ... "The fine, crowded leaves and coppicing features of this eucalypt may have ornamental value."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Other Eucalyptus species are invasive.
- Reproduces by wind-dispersed seeds.
- Possesses a lignotuber and coppices after cutting.

Low Risk Traits

- No reports of invasiveness or naturalization, but limited evidence of introduction outside native range
- Cultivated in full sun (dense shade may limit ability to spread)
- Unarmed (no spines, thorns, or burrs)
- Not reported to spread vegetatively.