

<b><i>Eucalyptus urophylla</i> (Timor mountain gum, Timor white gum) -- FLORIDA</b>		<b>Answer</b>	<b>Score</b>
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to FL climates (USDA hardiness zones; 0-low, 1-intermediate, 2-high)	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	y	1
2.04	Native or naturalized in regions with an average of 11-60 inches of annual precipitation	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	y	2
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	n	0
3.04	Environmental weed	n	0
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	?	
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	y	1
4.07	Causes allergies or is otherwise toxic to humans	n	0
4.08	Creates a fire hazard in natural ecosystems	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	?	
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	y	1
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	?	
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat		
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally	y	1
6.04	Self-compatible or apomictic	y	1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation		
6.07	Minimum generative time (years)	2	0

7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	?	
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	n	-1
8.01	Prolific seed production	y	1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	n	-1
8.03	Well controlled by herbicides	?	
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05	Effective natural enemies present in U.S.		
	<b>Total Score</b>		<b>7</b>
	<b>Implemented Pacific Second Screening</b>		<b>No</b>
	<b>Risk Assessment Results</b>		<b>Reject</b>

	Reference	Source data
1.01		Cultivated, but no evidence of selection for reduced weediness.
1.02		Skip to 2.01
1.03		Skip to 2.01
2.01	<p>1. PERAL NAPPFAST Global Plant Hardiness (<a href="http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif">http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif</a>). 2. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (<a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?405679">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?405679</a>). 3. Turnbull, J.W. &amp; J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I &amp; van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a>. Accessed: 8 December 2009. 4. Orwa, C.A. et al (2009) Agroforestry Database: a tree reference and selection guide version 4.0 (<a href="http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp">http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp</a> [<a href="http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf">http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf</a>]). 5. Pepe et al (2004) Conservation status of natural populations of <i>Eucalyptus urophylla</i> in Indonesia and international efforts to protect dwindling gene pools. <i>Forest Genetic Resources No. 31</i>, FAO . Rome, Italy.</p>	<p><b>No computer analysis was performed.</b> 1. Global plant hardiness zones (9?-)10-13; equivalent to USDA Hardiness zones (8b?-)9a-11b ([north?], central, south zones of Florida) 2. Distributional Range: native to Asia-Tropical (Indonesia - Lesser Sunda Islands). 3. Native to Indonesian Archipelago (Lesser Sunda Islands) zones 12, 13; Introduced to: Java zones 12, 13; Malaysia zones 12, 13; Papua New Guinea zones zones 10, 11, 12, 13; China zones 1-11, Australia 7-13 (mostly 9-12); Ivory Coast zones 12, 13; Cameroon zones 11, 12, 13; Gabon zones 12, 13; Madagascar zones 10, 11, 13; French Guiana zone 13; Brazil zones 10, 11, 12, 13. 4. Documented Species Distribution: Native = Indonesia; Exotic = Australia, Brazil, Cameroon, China, Cote d'Ivoire, French Guiana, Gabon, Madagascar, Malaysia, Papua New Guinea, Vietnam. 5. <i>Eucalyptus urophylla</i> naturally occurs on volcanically derived soils on seven islands in eastern Indonesia (Timor, Flores, Wetar, Lembata [Lomblem], Alor, Adonara, Pantar).</p>
2.02		<b>No computer analysis was performed.</b> Native range is well known; refer to 2.01 source data.
2.03	1. Köppen-Geiger climate map ( <a href="http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf">http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf</a> ).	1. Distribution in the native and cultivated ranges is widespread; there are at least 3 climatic groups.

2.04	<p>1. Encyclopedia of the Nations (<a href="http://www.nationsencyclopedia.com/">http://www.nationsencyclopedia.com/</a>). Accessed 15 December 2009.</p>	<p>1. Indonesia: lowland areas averages 180–320 cm (70"–125") annually, increasing with elevation to an average of 610 cm (240") in some mountain areas. In the lowlands of Sumatra and Kalimantan, the rainfall range is 305–370 cm (120"–145"); <b>Papua New Guinea</b>: annual rainfall varies widely, ranging from 127 cm (50") at Port Moresby to an average of 584 cm (230") in the western river basin; China: precipitation is heaviest in the south and southeast, receiving more than 200 cm (80"), to about 60 cm (25") in north and northeast China, and to less than 10 cm (4") in the northwest; Australia: mean annual rainfall is 42 cm (17"), Only about 20% has more than 76 cm (30") of rain annually; <b>Cameroon</b>: the average annual rainfall on the coast ranges between 250-400 cm (100"-160"); in the inland south, between 150 and 250 cm (60"-100"). The western slopes of Mt. Cameroon receive 600 to 900 cm (240"-350") annually; Gabon: at Libreville, the average annual rainfall is more than 254 cm (100"). Farther north on the coast, it is 381 cm (150"); <b>Ivory Coast</b>: southwest along the coast annual rainfall is about 200 cm (79"). Rainfall in the northeast averages 109 cm (43") annually; <b>Madagascar</b>: the east coast has about 284 cm (112") of rainfall annually, while inland has about 140 cm (55") annually; Brazil: Amazon Basin annual rainfall exceeding 300 cm (117") in some areas; French Guiana: annual rainfall 350–400 cm (140"–160").</p>
2.05	<p>1.a-c. Turnbull, J.W. &amp; J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I &amp; van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a>. Accessed: 8 December 2009. 2. Orwa, C.A. et al (2009) Agroforestry Database: a tree reference and selection guide version 4.0 (<a href="http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp">http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp</a> [<a href="http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf">http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf</a>]). 3. Pepe et al (2004) Conservation status of natural populations of <i>Eucalyptus urophylla</i> in Indonesia and international efforts to protect dwindling gene pools. <i>Forest Genetic Resources No. 31</i>, FAO . Rome, Italy.</p>	<p>1.a. Introduced to Java (1890), Malaysia (in or after 1966), Papua New Guinea (in or after 1966), China (in or after 1966), Australia (in or after 1966), Ivory Coast (in or after 1966), Cameroon (in or after 1966), Gabon (in or after 1966), Madagascar (in or after 1966), French Guiana (in or after 1966), Brazil (1919). 1.b. Extensive plantations of <i>E. urophylla</i> and its hybrids have been established in Brazil, China, Congo, and elsewhere. 1.c. <i>E. urophylla</i> has the potential to become much more widely used in humid and sub-humid tropical regions, as it belongs to the most productive of the low-latitude eucalypts. 2. Exotic = Australia, Brazil, Cameroon, China, Cote d'Ivoire, French Guiana, Gabon, Madagascar, Malaysia, Papua New Guinea, Vietnam. 3. CAMCORE (a private Indonesian forestry company) has established more than 100 provenance/progeny trials of genetic material in Argentina, Brazil, Columbia, Mexico, South Africa, and Venezuela.</p>

3.01	1. Pacific Island Ecosystems at Risk (PIER). Global Compendium of Weeds. <a href="http://www.hear.org">http://www.hear.org</a> . Accessed 29 May 2012.	1. Naturalized in Ecuador.
3.02		No evidence.
3.03		No evidence.
3.04		No evidence.
3.05	1. Holm, L. et al. (1979) A Geographical Atlas of World Weeds. John Wiley and Sons, New York. 2. Henderson, L (2001) Alien Weeds and Invasive Plants. Agricultural Research Council.	1. <i>Eucalyptus cambageana</i> is a principal weed in Australia. 2.a. <i>Eucalyptus diversicolor</i> is an invader in South Africa. 2.b. <i>E. grandis</i> was declared an invader (category 2).
4.01		No evidence
4.02	1.a-d. Fang et al. (2009) Allelopathic effects of <i>Eucalyptus urophylla</i> on ten tree species in south China. <i>Agroforest System</i> 76: 401-408.	1.a. The over-planting of <i>Eucalyptus</i> in south China has brought in many problems to the local eco-environment, including a decrease of biodiversity, which is attributed by its allelopathic effect. 1.b. Previous investigations of the allelopathic potential of the tree have primarily related to the inhibition of agricultural plants or weeds. 1.c. Aqueous leaf leachate significantly reduced seed germination and also demonstrated obvious inhibition on seedling growth. 1.d. Leaf volatile significantly reduced germination in higher concentration treatments. However, in lower concentrations seedlings had different influences on the seedling growth -- <i>Pygeum topengii</i> and <i>Pterospermum lanceaefolium</i> displayed promotive effects. Overall, this study shows that allelochemicals <i>E. urophylla</i> may stimulate or inhibit certain species growth depending upon the concentrations.
4.03		No evidence.
4.04	1. Lentz, C. & M. Mallo (1998) Environment Management in Gunung Mutis: A Case Study from Nusa Tenggara, Indonesia, Draft #3. <i>Produced in cooperation with</i> : WWF Nusa Tenggara, Cornell University, Nusa Tenggara Community Development Consortium.	1. Although WWF and villagers report that direct grazing on new ampupu shoots is not a problem ( <i>Eucalyptus urophylla</i> is unpalatable to livestock)
4.05	1.a-b. Orwa, C.A. et al (2009) Agroforestry Database: a tree reference and selection guide version 4.0 ( <a href="http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp">http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp</a> [ <a href="http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf">http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf</a> ]).	1.a. Seedlings of <i>E. urophylla</i> are susceptible to attack by termites and stem borers such as <i>Zeuzera coffeae</i> . 1.b. In the Solomon Islands, die-back attributed to the coreid insect <i>Amblyopelta cocophaga</i> has been observed in 3-4-month-old plantings.

4.06	<p>1.a-e. Orwa, C.A. et al (2009) Agroforestry Database: a tree reference and selection guide version 4.0 (<a href="http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp">http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp</a> [<a href="http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf">http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf</a>]). 2.a-b. Nyeko, P. et al. (2009) <i>Eucalypts</i> infestations by <i>Leptocybe invasa</i> in Uganda. <i>African Journal of Ecology</i> 47: 299-307.</p>	<p>1.a. Seedlings of <i>E. urophylla</i> are susceptible to attack by termites and stem borers such as <i>Zeuzera coffea</i> e. 1.b. In the Solomon Islands, die-back attributed to the coreid insect <i>Amblpelta cocophaga</i> has been observed in 3-4-month-old plantings. 1.c. Damping-off of seedlings occurs in cases of high humidity. 1.d. Root fungi such as <i>Botryodiplodia</i> spp., <i>Fusarium</i> spp., and <i>Helminthosporium</i> spp. are all a problem. 1.e. A canker disease caused by <i>Cryphonectria cubensis</i> is on <i>E. urophylla</i> in West Africa and South America. 2.a. Outbreaks of the blue gum chalcid, <i>Leptocybe invasa</i>, on <i>Eucalyptus</i> species in many countries in Africa, Asia, the Middle East, and Europe illustrate how pest problems raise serious concerns to developers of tropical tree plantation enterprises. 2.b. <i>E. urophylla</i> is NOT a preferred species by the insect, however <i>E. grandis</i> IS a suitable host. The hybrid <i>E. grandis</i> x <i>E. urophylla</i> (GU) shows less infestation than the <i>E. grandis</i> x <i>E. camaldulensis</i> (GC) hybrid (these two parent species are the preferred species for <i>L. invasa</i>).</p>
4.07		No evidence.
4.08	<p>1. Turnbull, J.W. &amp; J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I &amp; van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a>. Accessed: 8 December 2009.</p>	<p>1. <i>E. urophylla</i> is relatively resist to fire.</p>
4.09	<p>1. Nieto, V.M. &amp; J. Rodriguez (2003-07) Species Descriptions (Part II) <i>Eucalyptus urophylla</i> S.T. Blake. Corporacion nacional de Investigacion of Forestal, Santafé de Bogotá, Columbia. Accessed 12 December 2009 (<a href="http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2004-03-03.1423/at_download/file">http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2004-03-03.1423/at_download/file</a>). 2. Rejmánek, M. &amp; D.M. Richardson. 2011. <i>Eucalypts</i> (203-209). In D. Simberloff &amp; M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i>. Berkeley: University of California Press.</p>	<p>1. Seeds are provided with shade at the beginning of development; at the beginning the planting material must be shaded and kept moist -- shade is reduced to prepare the plantule for field planting. 2. Shade-tolerant sub-canopy species are not known.</p>

4.10	<p>1.a-b. Nieto, V.M. &amp; J. Rodriguez (2003-07) Species Descriptions (Part II) <i>Eucalyptus urophylla</i> S.T. Blake. Corporacion nacional de Investigacion of Forestal, Santafé de Bogotá, Columbia. Accessed 12 December 2009 (<a href="http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2004-03-03.1423/at_download/file">http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2004-03-03.1423/at_download/file</a>). 2. Orwa, C.A. et al (2009) Agroforestry Database: a tree reference and selection guide version 4.0 (<a href="http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp">http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp</a>) [<a href="http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf">http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf</a>].</p>	<p>1.a. <i>E. urophylla</i> had no major edaphic requirements and is appropriate for reforestation in flooded soils and in dry soil of low tropical lands; grows better in soils that remain wet during the dry season. 1.b. Tolerates chemically poor soils, but must be planted in soils having loose texture; it does not tolerate very clayey soils with a shallow phreatic layer. 2.a. Commonly found on basalt, schist and slates, but rarely on limestone. 2.b. Develops best on deep, moist, well-drained acidic or neutral soils derived from volcanic or metamorphic rock.</p>
4.11	<p>1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (<a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?405679">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?405679</a>). 2. Turnbull, J.W. &amp; J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I &amp; van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a>. Accessed: 8 December 2009.</p>	<p>1. Family: <i>Myrtaceae</i> . 2. Evergreen tree up to 45-55 m tall; bole usually straight, branchless for up to 30 m (in unfavorable environments a gnarled shrub).</p>
4.12	<p>1. Turnbull, J.W. &amp; J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I &amp; van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a>. Accessed: 8 December 2009.</p>	<p>1. Its early canopy closure and dense foliage should suppress competing vegetation. Bole usually straight, branchless for up to 30 m (but in unfavorable environments a gnarled shrub).</p>
5.01	<p>1. Turnbull, J.W. &amp; J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I &amp; van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a>. Accessed: 8 December 2009.</p>	<p>1. It frequently occurs as the dominant species in open, often secondary montane forests.</p>
5.02	<p>1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (<a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?405679">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?405679</a>).</p>	<p>1. Family: <i>Myrtaceae</i> .</p>
5.03	<p>1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (<a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?405679">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?405679</a>).</p>	<p>1. Family: <i>Myrtaceae</i> .</p>

5.04	1. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009.	1. Evergreen tree up to 45-55 m tall.
6.01		
6.02	1. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009. 2. Orwa, C.A. et al (2009) Agroforestry Database: a tree reference and selection guide version 4.0 ( <a href="http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp">http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp</a> [ <a href="http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf">http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf</a> ]). 3. Nieto, V.M. & J. Rodriguez (2003-07) Species Descriptions (Part II) <i>Eucalyptus urophylla</i> S.T. Blake. Corporacion nacional de Investigacion of Forestal, Santafé de Bogotá, Columbia. Accessed 12 December 2009 ( <a href="http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2004-03-03.1423/at_download/file">http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2004-03-03.1423/at_download/file</a> ).	1. Nursery establishment is generally by sowing untreated seed in germination beds. Mature seed germinates readily in 7-12 days. 2. Germplasm Management: On average there are 210,000-470,000 viable seeds/kg. 3.a. The weight of 1000 viable seeds ranges from 1.4-2.5 g; viable seeds average 210-650/kg. 3.b. Seeds can be scattered or planted in furrows in seedbeds and are provided with shade at the beginning of development; at the beginning the planting material must be shaded and kept moist -- shade is reduced to prepare the plantule for field planting.
6.03	1. Pepe et al (2004) Conservation status of natural populations of <i>Eucalyptus urophylla</i> in Indonesia and international efforts to protect dwindling gene pools. Forest Genetic Resources No. 31, FAO. Rome, Italy. 2. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009.	1. Contamination of pure lines of <i>E. urophylla</i> with pollen of other eucalypts, such as <i>E. grandis</i> and <i>E. alba</i> . 2.a. When natural populations of <i>E. urophylla</i> meet those of <i>E. alba</i> , hybrids are frequently encountered and introgression of characters may take place. 2.b. Ability to hybridize with a number of other <i>Eucalyptus</i> species, including <i>E. grandis</i> .
6.04	1. Horsley, T.N. & S.D. Johnson (2007) Is <i>Eucalyptus</i> cryptically self-incompatible? <i>Annals of Botany</i> 100: 1373-1378. 2. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009.	1. <i>Eucalyptus</i> is considered to have a breeding system that is preferentially out-crossing, although selfing is not uncommon. 2. Bisexual flowers; <i>E. urophylla</i> has the capacity for selfing if outcrossing fails, an evolutionary advantage in the survival of the populations.



6.05	1. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009.	1. Pollination is by insects. 2. Bisexual flowers are open to many pollen vectors, such as insects, birds, or small mammals. Some wind pollination is also possible.
6.06		
6.07	1. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009.	1. Flowering usually starts within 2 years after planting and seeds are produced abundantly by 4 years of age. Fruits reach maturity about 4 months after flowering.
7.01		
7.02	1.a-b. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009. 2.a-b. Orwa, C.A. et al (2009) Agroforestry Database: a tree reference and selection guide version 4.0 ( <a href="http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp">http://www.worldagroforestry.org/sites/treedbs/treedata/bases.asp</a> [ <a href="http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf">http://www.worldagroforestry.org/af/treedb/AFTPDFS/Eucalyptus_urophylla.pdf</a> ]). 3. Schatz, G.E. (2001) Generic Tree Flora of Madagascar. Royal Botanic Gardens, Kew and Missouri Botanical Garden. 4. Sidiyasa, K. et al. (1989) Tree Flora of Indonesia Check List for Bali, Nusa Tenggara and Timor. Edited by: Whitmore, T.C., I.G.M. Tantra, & U. Sutisna. Ministry of Forestry, Agency for Forestry Research and Development, Forest Research and Development Centre, Bogor. 5. Pepe et al (2004) Conservation status of natural populations of <i>Eucalyptus urophylla</i> in Indonesia and international efforts to protect dwindling gene pools. Forest Genetic Resources No. 31, FAO. Rome, Italy.	Species is being considered for introduction as a biomass crop. 1.a. Introduced to Java (1890), Malaysia (in or after 1966), Papua New Guinea (in or after 1966), China (in or after 1966), Australia (in or after 1966), Ivory Coast (in or after 1966), Camaroon (in or after 1966), Gabon (in or after 1966), Madagascar (in or after 1966), French Guiana (in or after 1966), Brazil (1919). 1.b. Extensive populations of <i>E. urophylla</i> and its hybrids have been established in Brazil, China, Congo, and elsewhere; most common hybrid planted is <i>E. grandis</i> x <i>E. urophylla</i> . 2.a. Products: Fuel (fuelwood and charcoal), fibre (pulp and paper production), timber (heavy construction, bridging, flooring, rafting, building poles, and fence posts), essential oil (76% paecymene, 7% alpha-pinene, and 4% gamma terpenene); the paracymene oil possesses disinfectant properties and is utilized on soapmaking and in the perfumery industry. 2.b. Services: <i>E. urophylla</i> is increasingly being used in reforestation programmes. 3. Introduced into Madagascar for timber and firewood, with many species cultivated in plantation. 4. Bali (planted). 5.a. It is one of the most commercially important forest species as an exotic in the world. 5.b. CAMCORE (a private Indonesian forestry company) has established more than 100 provenance/progeny trials of genetic material in Argentina, Brazil, Columbia, Mexico, South Africa, and Venezuela.
7.03		No evidence.

7.04	1. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009. 2.	No adaptations for wind dispersal (i.e., lacks wings). 1. Seed small, 4-6 angular to more or less semi-circular, black. 2. Wind is probably the only important agent of seed dispersal in the eucalypts, except possibly in species growing on river margins or flood plains where water could also transport the seed. 3. Relatively limited seed dispersal; planted eucalypts are very small and have no adaptations for dispersal (wings or fleshy). 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 that are in agreement with measurement of terminal descent velocity.
7.05	1. Rejmánek, M. & D.M. Richardson. 2011. <i>Eucalypts</i> (203-209). In D. Simberloff & M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i> . Berkeley: University of California Press.	1. Eucalypts should not be planted near rivers/streams. Temporarily flooded or eroded river/stream banks are suitable habitat for spontaneous establishment of seedlings. Additionally, their seeds can be dispersed for long distances by running water.
7.06	1. Southern, S.G. et al. 2004. Review of gene movement by bats and birds and its potential significance for eucalypt plantation forestry. <i>Australian Forestry</i> , 67(1): 44-53.	1. Dispersal in animal droppings does not occur, although many birds eat eucalypt seed, because the seed does not survive passage through the alimentary canal of mammals and birds (Joseph 1986).
7.07	1. Turnbull, J.W. & J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I & van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a> . Accessed: 8 December 2009.	No adaptations that would suggest that it could attach itself externally to animals. 1. Seed small, 4-6 angular to more or less semi-circular, black.
7.08	1. Southern, S.G. et al. 2004. Review of gene movement by bats and birds and its potential significance for eucalypt plantation forestry. <i>Australian Forestry</i> , 67(1): 44-53.	1. Dispersal in animal droppings does not occur, although many birds eat eucalypt seed, because the seed does not survive passage through the alimentary canal of mammals and birds (Joseph 1986).

8.01	<p>1. Masano, H., Mawazin (1995) Seed production potential of 8 year old <i>Eucalyptus urophylla</i> S. T. Blake at Sumberweringin. Buletin Penelitian Hutan. Accessed: [ <a href="http://www.cababstractsplus.org/abstracts/Abstract.aspx?AcNo=19980602189">http://www.cababstractsplus.org/abstracts/Abstract.aspx?AcNo=19980602189</a>] 2010, February 4. 2. Liu, K., Eastwood, R.J., Flynn, S., Turner, R.M., and Stuppy, W.H. 2008. Seed Information Database (release 7.1, May 2008) <a href="http://www.kew.org/data/sid">http://www.kew.org/data/sid</a>. Accessed: <a href="http://data.kew.org/sid/SidServlet?ID=9889&amp;Num=62E">http://data.kew.org/sid/SidServlet?ID=9889&amp;Num=62E</a>. [2009, December 8].</p>	<p>1. Published data indicate that the seed production of this species in natural forest in Nusa Tenggara Timur province was about 214.7-358.2 g seed/tree. 2. Average 1000 seed weight (g) = 68.1g. <b>[Therefore, based on the information of these two sources, one tree produced approximately 3150-5260 seeds.]</b></p>
8.02	<p>1. Rejmánek, M. &amp; D.M. Richardson. 2011. <i>Eucalypts</i> (203-209). In D. Simberloff &amp; M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i>. Berkeley: University of California Press.</p>	<p>1. Eucalypt seeds do not have dormancy and seed storage in the soil lasts less than a year.</p>
8.03	<p>1. Rejmánek, M. &amp; D.M. Richardson. 2011. <i>Eucalypts</i> (203-209). In D. Simberloff &amp; M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i>. Berkeley: University of California Press.</p>	<p>1. Triclopyr or glyphosate applied to freshly cut stumps can greatly reduce resprouting.</p>
8.04	<p>1. Turnbull, J.W. &amp; J.C. Doran (1997) <i>Eucalyptus urophylla</i> S.T. Blake [Internet] Record from PROSEABASE. Faridah Hanum, I &amp; van der Maesen, L.J.G. (Editors). PROSEA Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. <a href="http://www.proseanet.org">http://www.proseanet.org</a>. Accessed: 8 December 2009</p>	<p>1. Its fast growth, coppicing ability, adaptability to a range of environments, early canopy closure, relative resistance to fire and to diseases and pests, and the various products which can be obtained from the wood, make it a very useful tropical tree.</p>
8.05		