

Family: *Malvaceae*

Taxon: *Ochroma pyramidale*

Synonym: *Bombax pyramidale* Cav. ex Lam. (basionym) **Common Name:** balsa
Ochroma bicolor Rowlee corkwood
Ochroma concolor Rowlee downtree
Ochroma grandiflorum Rowlee
Ochroma lagopus Sw.
Ochroma obtusum Rowlee

Questionnaire :	current 20090513	Assessor:	Patti Clifford	Designation:	H(HPWRA)
Status:	Assessor Approved	Data Entry Person:	Patti Clifford	WRA Score	8
101	Is the species highly domesticated?			y=-3, n=0	n
102	Has the species become naturalized where grown?			y=1, n=-1	
103	Does the species have weedy races?			y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"			(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data			(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)			y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates			y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?			y=-2, ?=-1, n=0	y
301	Naturalized beyond native range			y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed			n=0, y = 1*multiplier (see Appendix 2)	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)	y
305	Congeneric weed			n=0, y = 1*multiplier (see Appendix 2)	n
401	Produces spines, thorns or burrs			y=1, n=0	n
402	Allelopathic			y=1, n=0	
403	Parasitic			y=1, n=0	n
404	Unpalatable to grazing animals			y=1, n=-1	
405	Toxic to animals			y=1, n=0	n
406	Host for recognized pests and pathogens			y=1, n=0	
407	Causes allergies or is otherwise toxic to humans			y=1, n=0	n
408	Creates a fire hazard in natural ecosystems			y=1, n=0	

409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n
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	
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	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	3
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	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	
801	Prolific seed production (>1000/m2)	y=1, n=-1	y
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	y
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	n
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 8

Supporting Data:

101	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	No breeding programs are reported for <i>Ochroma pyramidale</i> .
201	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/genus.pl?1738	Native range: Belize; Costa Rica; El Salvador; Guatemala; Honduras; Nicaragua; Panama; Cuba; Dominica; Grenada; Guadeloupe; Hispaniola; Jamaica; Martinique; Montserrat; Puerto Rico; St. Kitts and Nevis; St. Lucia; St. Vincent and Grenadines; French Guiana; Venezuela; Brazil [n. & w.]; Bolivia; Colombia; Ecuador; Peru.
202	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/genus.pl?1738	Native range: Belize; Costa Rica; El Salvador; Guatemala; Honduras; Nicaragua; Panama; Cuba; Dominica; Grenada; Guadeloupe; Hispaniola; Jamaica; Martinique; Montserrat; Puerto Rico; St. Kitts and Nevis; St. Lucia; St. Vincent and Grenadines; French Guiana; Venezuela; Brazil [n. & w.]; Bolivia; Colombia; Ecuador; Peru.
203	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Climatic amplitude (estimates) - Altitude range: 300 - 1500 m - Mean annual rainfall: 1500 - 3000 mm - Rainfall regime: bimodal; uniform - Dry season duration: 1 - 4 months - Mean annual temperature: 22 - 35°C - Mean maximum temperature of hottest month: 24 - 35°C - Mean minimum temperature of coldest month: 18 - 22°C - Absolute minimum temperature: > 14°C
204	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/genus.pl?1738	Native range: Belize; Costa Rica; El Salvador; Guatemala; Honduras; Nicaragua; Panama; Cuba; Dominica; Grenada; Guadeloupe; Hispaniola; Jamaica; Martinique; Montserrat; Puerto Rico; St. Kitts and Nevis; St. Lucia; St. Vincent and Grenadines; French Guiana; Venezuela; Brazil [n. & w.]; Bolivia; Colombia; Ecuador; Peru.
205	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	" <i>Ochroma pyramidale</i> is a plantation crop in Mindanao, Philippines (Dichoso, 1978). It has also been grown in southern India, Sri Lanka, Malaysia, Java, southern China and Papua New Guinea, where it has become naturalized locally (Sosef et al., 1998). Plantations have also been established in East and West Africa (Zimbabwe, Cameroon and Ghana)."
301	2008. Louppe, D./Oteng-Amoako, A.A./Brink, M.. Timbers 1: volume 7 of plant resources of tropical Africa. PROTA, http://books.google.com/books?id=-nw-mZQ0kcEC&pg=PA454&dq=podocarpus+henkelii&hl=en&ei=yK_qTJz3OciKnQfFqbDJDQ&sa=X&oi=book_result&ct=result&r	In Cameroon, <i>Ochroma pyramidale</i> is naturalized, occurring frequently in woodland and secondary forest.
302	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence.
303	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence.
304	2002. Tye, A./Soria, M.C./Gardener, M.R.. International Union for the Conservation of Nature, http://data.iucn.org/dbtw-wpd/edocs/SSC-OP-028.pdf#page=342	<i>Ochroma pyramidale</i> is an invasive weed in the Galapagos where it adversely affects the native ecosystem.
305	2008. Louppe, D./Oteng-Amoako, A.A./Brink, M.. Timbers 1: volume 7 of plant resources of tropical Africa. PROTA, http://books.google.com/books?id=-nw-mZQ0kcEC&pg=PA454&dq=podocarpus+henkelii&hl=en&ei=yK_qTJz3OciKnQfFqbDJDQ&sa=X&oi=book_result&ct=result&r	<i>Ochroma</i> only comprises a single species. <i>Ochroma pyramidale</i> is highly variable, and the genus was formerly thought to comprise at least 11 species.
401	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	No spines, thorns, burrs.
402	2010. WRA Specialist. Personal Communication.	Unknown.

403	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Not parasitic.
404	2010. WRA Specialist. Personal Communication.	Unknown.
405	2010. National Center for Biotechnology Information. PubMed. U.S. National Library of Medicine, Bethesda, Maryland http://www.ncbi.nlm.nih.gov/sites/entrez	No evidence of toxicity.
405	2010. Specialized Information Services, U.S. National Library of Medicine. TOXNET Toxicology Data Network [Online Database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	No evidence of toxicity.
406	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Pests recorded Insects: Anadasmus porinodes Xylosandrus compactus (shot-hole borer) Xylosandrus morigerus (brown twig beetle) Zeuzera coffeae (coffee carpenter) Fungus diseases: Phellinus noxius (brown tea root disease)
407	2010. National Center for Biotechnology Information. PubMed. U.S. National Library of Medicine, Bethesda, Maryland http://www.ncbi.nlm.nih.gov/sites/entrez	No evidence.
407	2010. Specialized Information Services, U.S. National Library of Medicine. TOXNET Toxicology Data Network [Online Database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	No evidence of causing allergies or toxicity to humans.
408	2010. WRA Specialist. Personal Communication.	Unknown.
409	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Young <i>Ochroma pyramidale</i> plants cannot tolerate shade, frost or physical injury. <i>O. pyramidale</i> is a very strong light demander, but tolerates some lateral shade in the first year in cases where the summer sunlight is strong.
410	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	<i>O. pyramidale</i> prefers fertile, moist soils, especially alluvial deposits or volcanic soils. It will also grow on clayey-sandy soils, providing they are well-drained. It tolerates alkalinity. Soil types: alluvial, clay, tropical, sandy.
411	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	" <i>Ochroma pyramidale</i> is a deciduous or evergreen medium-size tree attaining 30 m in height and 70 cm in diameter."
412	2010. WRA Specialist. Personal Communication.	Unknown.
501	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Terrestrial.
502	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Malvaceae also placed in the Bombaceae.
503	2010. www.nationmaster.com . Encyclopedia Nitrogen fixation. Nationmaster.com, http://www.nationmaster.com/encyclopedia/Nitrogen-fixation	Not nitrogen-fixing.
504	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Tree.
601	2010. WRA Specialist. Personal Communication.	No evidence.
602	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Trees start producing viable seed after about 2 years.
603	2010. WRA Specialist. Personal Communication.	Unknown.
604	1974. Bawa, K.S.. Breeding systems of tree species of a lowland tropical community. <i>Evolution</i> . 28: 85-92.	Self-incompatible.

605	2002. N.H.S. Howcroft M. Phil.. The balsa manual: techniques for establishment & mangement of balsa (<i>Ochroma lagopus</i>) plantations in Papua New Guinea. ITTO East New Britiain Balsa Industry Strengthening Project, Keravat http://www.fiapng.com/balsa%20manua	Pollinated by bats and insects.
605	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	In Java and Peninsular Malaysia, <i>Ochroma pyramidale</i> flowers throughout the year, and is pollinated by bats.
606	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Normally propagated by seed.
607	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Viable seeds are produced from 3-4 years old upward
701	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	" <i>Ochroma pyramidale</i> is a plantation crop in Mindanao, Philippines (Dichoso, 1978). It has also been grown in southern India, Sri Lanka, Malaysia, Java, southern China and Papua New Guinea, where it has become naturalized locally (Sosef et al., 1998). Plantations have also been established in East and West Africa (Zimbabwe, Cameroon and Ghana)."
702	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	" <i>Ochroma pyramidale</i> is a plantation crop in Mindanao, Philippines (Dichoso, 1978). It has also been grown in southern India, Sri Lanka, Malaysia, Java, southern China and Papua New Guinea, where it has become naturalized locally (Sosef et al., 1998). Plantations have also been established in East and West Africa (Zimbabwe, Cameroon and Ghana)."
703	2010. WRA Specialist. Personal Communication.	No evidence of produce contaminant.
704	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Trees start producing viable seed after about 2 years, and seed dispersal is by wind.
705	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Trees start producing viable seed after about 2 years, and seed dispersal is by wind.
706	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Trees start producing viable seed after about 2 years, and seed dispersal is by wind.
707	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Trees start producing viable seed after about 2 years, and seed dispersal is by wind.
708	2010. WRA Specialist. Personal Communication.	Unknown.
801	2002. N.H.S. Howcroft M. Phil.. The balsa manual: techniques for establishment & mangement of balsa (<i>Ochroma lagopus</i>) plantations in Papua New Guinea. ITTO East New Britiain Balsa Industry Strengthening Project, Keravat http://www.fiapng.com/balsa%20manua	The number of seeds per pod ranges from 400-600.
801	2010. World Agroforestry Centre. <i>Ochroma pyramidale</i> . http://www.worldagroforestrycentre.org/sea/Products/AFDbases/af/asp/SpeciesInfo.asp?SpID=18161	The very fine seeds (112 000-150 000 dry seeds/kg) can be stored for several years in jute bags or in closed receptacles.
802	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	Seed storage orthodox.
803	2010. WRA Specialist. Personal Communication.	Unknown.
804	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	"The roots of young trees are very susceptible to damage, so bare-rooted plants cannot be used. Therefore direct sowing is often the preferred method. Careful tending is necessary during the first year, as the seedlings are quite fragile, and can be easily damaged by wounding, browsing, etc. Protection against fire is also necessary."
805	2010. WRA Specialist. Personal Communication.	Unknown.