

Family: *Rutaceae*

Taxon: *Calodendrum capense*

Synonym: *Pallassia capensis* Christm.

Common Name: Cape-chestnut

Questionnaire : current 20090513
Status: Assessor Approved

Assessor: Patti Clifford
Data Entry Person: Patti Clifford

Designation: L(Hawai'i)

WRA Score -1

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

Designation: L(Hawai'i)

WRA Score -1

Supporting Data:

101	2010. WRA Specialist. Personal Communication.	No evidence of domestication to limit invasive characteristics.
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 region: Kenya; Tanzania; Uganda; Malawi; Zimbabwe; Lesotho; South Africa; Swaziland.
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: Kenya; Tanzania; Uganda; Malawi; Zimbabwe; Lesotho; South Africa; Swaziland.
203	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	In East Africa, <i>Calodendrum capense</i> occurs in evergreen montane forest and riverine forest at 1200-2300 m altitude, but in southern Africa it can also be found in scrub vegetation and coastal forest at sea-level.
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: Kenya; Tanzania; Uganda; Malawi; Zimbabwe; Lesotho; South Africa; Swaziland.
205	2010. WRA Specialist. Personal Communication.	No evidence of repeated introductions outside native range.
301	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence of naturalization.
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	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence.
305	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence.
401	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	No spines, thorns burrs.
402	2010. WRA Specialist. Personal Communication.	Unknown.
403	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	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.
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.
406	2009. APHIS USDA. Federal domestic quarantine order: citrus greening disease (CG) and Asian citrus psyllid (ACP). USDA, http://www.aphis.usda.gov/plant_health/plant_pests_info/citrus_greening/downloads/pdf_files/spro/DA-2009-06.pdf	<i>Calodendrum capense</i> , <i>X Citroncirus webberi</i> is a host of the Asian Citrus Psyllid and its movement is regulated.
407	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	The bark of <i>Calodendrum capense</i> is used in cosmetics to dye the skin whitish. The seed oil is used as a skin-care product and is used in soap making
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.
408	2010. WRA Specialist. Personal Communication.	Unknown.
409	2003. Llamas, K. A.. Tropical Flowering Plants. Timber Press, Portland, OR	Full sun.
410	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	<i>Calodendrum</i> tolerates various soil conditions including dry black cotton soils, but prefers moist forest soils.
411	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Tree up to 20 m tall.
412	2010. WRA Specialist. Personal Communication.	Unknown.
501	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Terrestrial.
502	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Rutaceae.
503	2010. www.nationmaster.com. Encyclopedia Nitrogen fixation. Nationmaster.com, http://www.nationmaster.com/encyclopedia/Nitrogen-fixation	Not a nitrogen-fixer.

504	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Tree.
601	2010. WRA Specialist. Personal Communication.	No evidence.
602	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Non-viable seeds can be separated from viable ones in water because they float.
603	2010. WRA Specialist. Personal Communication.	Unknown.
604	2010. WRA Specialist. Personal Communication.	Unknown.
605	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Flowers are pollinated by butterflies and bees.
606	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Reproduction by seed.
607	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Trees may start flowering 7-8 years after sowing, but 10 is more common. Trees grown from cuttings may flower after 4 years.
701	2010. WRA Specialist. Personal Communication.	No evidence of unintentional introduction.
702	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Occasionally planted as an ornamental and along roadsides in its native distribution and other places e.g. in Australia
703	2010. WRA Specialist. Personal Communication.	No evidence of produce contaminant.
704	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=I0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Fruit a globose capsule. [no adaptation for wind dispersal]
705	2010. WRA Specialist. Personal Communication.	Unknown.

706	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=l0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Monkeys and squirrels feed on the fruits while pigeons and parrots eat the seeds; these animals may disperse the seeds.
707	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=l0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Fruit a globose capsule.
708	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=l0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Monkeys and squirrels feed on the fruits while pigeons and parrots eat the seeds; these animals may disperse the seeds.
801	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=l0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	Fruit a globose capsule c. 3.5 cm in diameter, stiped, 5-lobed, strongly warty, brown, dehiscing wit h5 woody valves remaining attached to the top, up to 10-seeded. Seeds half-globose to pyramid shaped, 1-1.5 cm in diameter.
802	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&printsec=frontcover&dq=Timbers+1&hl=en&ei=l0r5TIXuFYT0tgOHw6mdAw&sa=X&oi=book_result&ct=result&	The germination rate of fresh seed is generally high, up to 90%. Germination takes 10-40 days. Seeds can be stored up to one year when protected from insects.
803	2010. WRA Specialist. Personal Communication.	Unknown.
804	2010. WRA Specialist. Personal Communication.	Unknown.
805	2010. WRA Specialist. Personal Communication.	Unknown.