

**Family:** *Bignoniaceae*

**Taxon:** *Parmentiera cereifera*

**Synonym:** NA

**Common Name:** Candle tree  
árvore-de-velas  
árbol de cera

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: L
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	<b>WRA Score -1</b>
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	n
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0	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)	
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		y=1, n=0	n
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	n
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0	
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	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	
605	Requires specialist pollinators	y=-1, n=0	y
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	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	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	
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

WRA Score -1

**Supporting Data:**

101	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). Flora Neotropica. 25(1): 1-130.	[Is the species highly domesticated?? No] No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). Flora Neotropica. 25(1): 1-130.	[Species suited to tropical or subtropical climate(s)? 2-high] "Distribution. Apparently restricted to limestone outcrops on the Atlantic slope of the Canal Zone and adjacent central Panama, where it is locally common."
202	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). Flora Neotropica. 25(1): 1-130.	[Quality of climate match data? 2-high] "Distribution. Apparently restricted to limestone outcrops on the Atlantic slope of the Canal Zone and adjacent central Panama, where it is locally common."
203	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. Flora of Panama. Part IX. Family 172. Bignoniaceae. Annals of the Missouri Botanical Garden. 60(3): 781-977.	[Broad climate suitability (environmental versatility)? No] "A locally common small to medium-sized tree, <i>P. cereifera</i> is apparently restricted in nature to the tropical moist forest of the Atlantic slope of Central Panama." [Restricted range suggests limited climate suitability]
203	1998. Riffle, R.L.. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	[Broad climate suitability (environmental versatility)? No] "Zones 10 and 11; marginal in zone 10a"
203	2011. Trade Winds Fruit. Candle Stick Tree - <i>Parmentiera cereifera</i> . <a href="http://www.tradewindsfruit.com/candle_stick_tree.htm">http://www.tradewindsfruit.com/candle_stick_tree.htm</a>	[Broad climate suitability (environmental versatility)? Possibly] "Grows well in tropical regions but will survive frosts. The Candle Stick Tree is fairly adaptable to a range of soils and climate conditions."
204	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). Flora Neotropica. 25(1): 1-130.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Distribution. Apparently restricted to limestone outcrops on the Atlantic slope of the Canal Zone and adjacent central Panama, where it is locally common."
205	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). Flora Neotropica. 25(1): 1-130.	[Does the species have a history of repeated introductions outside its natural range? Yes] "It is widely cultivated as a curiosity throughout the tropics."
205	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Does the species have a history of repeated introductions outside its natural range? Yes] "...widely if not commonly cultivated as a novelty because of its hanging, candle-like fruits."
301	1993. Fosberg, F.R./Sachet, M.-H./Oliver, R.L.. Flora of Micronesia, 5: Bignoniaceae-Rubiaceae. Smithsonian Contributions to Botany. 81: 1-135.	[Naturalized beyond native range? Persisting, but not naturalized] "Widely planted in the tropics, native of Panama; 1 or more trees persisting in the abandoned Dededo Arboretum on Guam."
301	2000. Liogier, A.H./ Martorell, L.F.. Flora of Puerto Rico and adjacent islands: a systematic synopsis. La Editorial, UPR, San Juan, Puerto Rico	[Naturalized beyond native range? Yes] "Planted as an ornamental in gardens, rarely escaped in Puerto Rico..."
301	2010. Gann, G.D./Bradley, K.A.. <i>Parmentiera cereifera</i> - The Floristic Inventory and Assessment of Puerto Rico Database Online (BETA). The Institute for Regional Conservation, Miami, FL <a href="http://www.regionalconservation.org/ircs/database/plants/PlantPagePR.a">http://www.regionalconservation.org/ircs/database/plants/PlantPagePR.a</a>	[Naturalized beyond native range? Possibly Puerto Rico] "Native Status: Not Native, Naturalized" [This Database is Under Construction. DO NOT CITE DATA.]
302	2007. Randall, R.P.. Global Compendium of Weeds - <i>Parmentiera cereifera</i> [Online Database]. <a href="http://www.hear.org/gcw/species/parmentiera_cereifera/">http://www.hear.org/gcw/species/parmentiera_cereifera/</a>	[Garden/amenity/disturbance weed? Questionably] Listed as a weed, but no evidence of negative impacts found in literature
303	2007. Randall, R.P.. Global Compendium of Weeds - <i>Parmentiera cereifera</i> [Online Database]. <a href="http://www.hear.org/gcw/species/parmentiera_cereifera/">http://www.hear.org/gcw/species/parmentiera_cereifera/</a>	[Agricultural/forestry/horticultural weed? No] No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds - <i>Parmentiera cereifera</i> [Online Database]. <a href="http://www.hear.org/gcw/species/parmentiera_cereifera/">http://www.hear.org/gcw/species/parmentiera_cereifera/</a>	[Environmental weed? No] No evidence

305	2001. Werren, G.. Environmental Weeds of the Wet Tropics Bioregion: Risk Assessment & Priority Ranking. Rainforest CRC, Cairns, Australia <a href="http://www.wettropics.gov.au/res/downloads/Weeds.pdf">http://www.wettropics.gov.au/res/downloads/Weeds.pdf</a>	[Congeneric weed? Yes] "trees that are invading slowly and/or more insidiously because they are 'sleepers' in the early stages of invasion or are more cryptic/less conspicuous – eg, <i>Parmentiera aculeata</i> , <i>Mangifera indica</i> , <i>Flacourtia jangomas</i> , <i>Blighia sapida</i> - that, while most have not yet necessarily caused serious ecological damage, pose major threats by virtue of their size, or in the case of some such as Cucumber Tree, can form dense monospecific stands displacing native species;"
305	2002. Invasive Species Council. Wet Tropics Weeds top 500. Feral Herald. 1: 5.	[Congeneric weed? Yes] "Ten Worst Wet Tropics Weeds" [List includes Cucumber Vine ( <i>Parmentiera aculeata</i> )]
305	2007. Poon, E./Westcott, D.A./Burrows, D./Webb, A.. Assessment of research needs for the management of invasive species in the terrestrial and aquatic ecosystems of the Wet Tropics. Reef & Rainforest Research Centre Ltd, Cairns	[Congeneric weed? Yes] "Table 5. High priority newly emerging environmental weeds, recommended by the WT Conservation Strategy to be eradicated completely in the WTR (WTMA 2004)." [List includes <i>Parmentiera aculeata</i> ]
401	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). Flora Neotropica. 25(1): 1-130.	[Produces spines, thorns or burrs? No] "Small tree to 20 cm dbh. and 7 m tall, usually several-branched near the base, the main branches strongly ascending, the crown open; twigs terete, subpuberulous, the nodes often with a pair of small leaves in the axil of a larger pair, foliaceous pseudostipules sometimes present, 6-10 mm long and 3-4 mm wide. Leaves opposite, 3-foliolate; leaflets elliptic to elliptic-rhomboid, acute to acuminate, basally attenuate, the terminal leaflet 3.6-9.5 cm long and 1.4-4 cm wide, the lateral leaflets 3.0-6.5 cm long and 1.4-3.6 cm wide, membranaceous, secondary veins in 4-6 pairs, somewhat lepidote at least beneath, simple-puberulous along the midvein above and beneath, especially in axils of lateral nerves, usually with a few plate-shaped glands along the mid-vein beneath, drying olive to blackish; petiolules not differentiated, petiole conspicuously winged, 2.4-6.2 cm long, the wing to 0.4 cm wide, widest apically, basally attenuate, the midrib slightly puberulous."
401	1993. Fosberg, F.R./Sachet, M.-H./Oliver, R.L.. Flora of Micronesia, 5: Bignoniaceae-Rubiaceae. Smithsonian Contributions to Botany. 81: 1-135.	[Produces spines, thorns or burrs? No] "Small spineless tree; often with several trunks"
402	1976. Gentry. A.H.. Bignoniaceae of Southern Central America: Distribution and Ecological Specificity. Biotropica. 8(2): 117-131.	[Allelopathic? No] No evidence
403	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). Flora Neotropica. 25(1): 1-130.	[Parasitic? No] "Small tree to 20 cm dbh. and 7 m tall..." [Bignoniaceae. Not known to be parasitic]
404	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). Flora Neotropica. 25(1): 1-130.	[Unpalatable to grazing animals? Unknown. Fruits edible] "The pulp of <i>Crescentia</i> fruits, though insipid, is occasionally eaten as is the waxy fruit of <i>Parmentiera cereifera</i> (Waffer, 1699). The latter has been an important cattle food (Seemann, 1851) and was dried and used for candles by pre-conquest Panamanian Indians (Waffer, 1699)."
405	2001. Hanelt, P. (ed.). Mansfeld's encyclopedia of agricultural & horticultural crops: (except ornamentals). Algae, Fungi, Pteridophyta, Gymnospermae, Angiospermae-Dicotyledones: Magnoliaceae-Chrysobalanaceae. Springer, Berlin	[Toxic to animals? No] "Fruits are eaten raw or are used as forage for cattle."
406	2011. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens? Unknown]
407	1998. Riffle, R.L.. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	[Causes allergies or is otherwise toxic to humans? No] "The fruits have a strong vegetable odor that many people compare to that of ripe apples, and they are relished by some and grown in many places for cattle fodder." [No evidence of toxicity in this widely used tree]
407	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Causes allergies or is otherwise toxic to humans? No] "...widely if not commonly cultivated as a novelty because of its hanging, candle-like fruits. The fruits are eaten in the native range of the species."
408	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. Flora of Panama. Part IX. Family 172. Bignoniaceae. Annals of the Missouri Botanical Garden. 60(3): 781-977.	[Creates a fire hazard in natural ecosystems? No] "A locally common small to medium-sized tree, <i>P. cereifera</i> is apparently restricted in nature to the tropical moist forest of the Atlantic slope of Central Panama." [No evidence, and unlikely given ecological conditions in which it naturally occurs]
409	2008. Fruit and Nut Trees. Fruit Bearing Plants - Candle Tree - <i>Parmentiera cereifera</i> . <a href="http://fruitandnuttrees.com/candle-tree-guajilote-parmentiera-edulis">http://fruitandnuttrees.com/candle-tree-guajilote-parmentiera-edulis</a>	[Is a shade tolerant plant at some stage of its life cycle? Possibly No] "...can adapt to a wide range of climatic conditions but, it prefers the lowland forest areas with a medium to high rainfall, frost free, full sun and reasonable drainage."

409	2011. Southeast Growers. <i>Parmentiera cereifera</i> . <a href="http://www.southeastgrowers.com/ZA%20Parmentiera%20cereifera.htm">http://www.southeastgrowers.com/ZA%20Parmentiera%20cereifera.htm</a>	[Is a shade tolerant plant at some stage of its life cycle? Possibly No] "Light: partial shade-full sun"
410	1976. Gentry, A.H.. Bignoniaceae of Southern Central America: Distribution and Ecological Specificity. <i>Biotropica</i> . 8(2): 117-131.	[Tolerates a wide range of soil conditions? No] "Preference for a particular substrate is another factor which limits distribution of some species of Bignoniaceae. A conspicuous example is <i>Parmentiera cereifera</i> , well known as a cultivated exotic under the name "candle tree," which is limited in nature to limestone outcrops of Central Panama. It is extremely common in the upper Chagres Valley around Madden Lake where an old coral reef with little or no soil cover underlies a relatively large area. Surface limestone is much less abundant in the Fort Sherman region of the lower Chagres Valley, and here <i>P. cereifera</i> is rare, being restricted to occasional limestone outcrops."
411	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). <i>Flora Neotropica</i> . 25(1): 1-130.	[Climbing or smothering growth habit? No] "Small tree to 20 cm dbh. and 7 m tall..."
412	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. <i>Flora of Panama</i> . Part IX. Family 172. Bignoniaceae. <i>Annals of the Missouri Botanical Garden</i> . 60(3): 781-977.	[Forms dense thickets? No] "A locally common small to medium-sized tree, <i>P. cereifera</i> is apparently restricted in nature to the tropical moist forest of the Atlantic slope of Central Panama. It is widely cultivated as a curiosity throughout the tropics." [No evidence]
412	2000. Liogier, A.H./ Martorell, L.F.. <i>Flora of Puerto Rico and adjacent islands: a systematic synopsis</i> . La Editorial, UPR, San Juan, Puerto Rico	[Forms dense thickets? No] "Planted as an ornamental in gardens, rarely escaped in Puerto Rico..." [No evidence]
501	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). <i>Flora Neotropica</i> . 25(1): 1-130.	[Aquatic? No] "Small tree to 20 cm dbh. and 7 m tall..." [Terrestrial]
502	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). <i>Flora Neotropica</i> . 25(1): 1-130.	[Grass? No] Bignoniaceae
503	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). <i>Flora Neotropica</i> . 25(1): 1-130.	[Nitrogen fixing woody plant? No] Bignoniaceae
504	1980. Gentry, A.H.. Bignoniaceae: Part I (Crescentieae and Tourrettieae). <i>Flora Neotropica</i> . 25(1): 1-130.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Small tree to 20 cm dbh. and 7 m tall..."
601	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. <i>Flora of Panama</i> . Part IX. Family 172. Bignoniaceae. <i>Annals of the Missouri Botanical Garden</i> . 60(3): 781-977.	[Evidence of substantial reproductive failure in native habitat? No] "Fruit set is abundant and the waxy-fleshy fruits fall beneath the parent tree at maturity"
602	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. <i>Flora of Panama</i> . Part IX. Family 172. Bignoniaceae. <i>Annals of the Missouri Botanical Garden</i> . 60(3): 781-977.	[Produces viable seed? Yes] "Fruit set is abundant and the waxy-fleshy fruits fall beneath the parent tree at maturity"
602	2000. Whistler, W.A.. <i>Tropical Ornamentals: A Guide</i> . Timber Press, Portland, OR	[Produces viable seed? Yes] "Propagate by seeds. Well-drained soils in sunny places are preferred. It is usually grown by itself as a specimen tree."
603	2011. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2011. WRA Specialist. Personal Communication.	[Self-compatible or apomictic? Unknown]
605	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. <i>Flora of Panama</i> . Part IX. Family 172. Bignoniaceae. <i>Annals of the Missouri Botanical Garden</i> . 60(3): 781-977.	[Requires specialist pollinators? Yes] "Flowers with musky odor, the calyx spathaceously split on the ventral side, 1.9-4.9 cm long and 0.9-2.9 cm wide, inconspicuously lepidote, at least at the base; corolla pure white ... Flowering throughout the year, it is pollinated by bats. The flowers do not open until 4:00 or 5:00 in the evening."
606	2000. Whistler, W.A.. <i>Tropical Ornamentals: A Guide</i> . Timber Press, Portland, OR	[Reproduction by vegetative fragmentation? No] "Propagate by seeds. Well-drained soils in sunny places are preferred. It is usually grown by itself as a specimen tree." [No evidence]
607	2008. <i>Fruit and Nut Trees</i> . Fruit Bearing Plants - Candle Tree - <i>Parmentiera cereifera</i> . <a href="http://fruitandnuttrees.com/candle-tree-guajilote-parmentiera-edulis">http://fruitandnuttrees.com/candle-tree-guajilote-parmentiera-edulis</a>	[Minimum generative time (years)? 4+] "Propagation of the candle tree is easily accomplished by planting the small seeds. It bears fruit in approximately 5 years."

701	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. Flora of Panama. Part IX. Family 172. Bignoniaceae. Annals of the Missouri Botanical Garden. 60(3): 781-977.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] "Fruit elongate-linear, subterete in cross section, 39-54 cm long and 1.0-2.4 cm wide, glabrous to sparsely lepidote, waxy yellow, divided into a fleshy part surrounding the seeds and a fibrous central core surrounded by the seeds; seeds small, thin, 3-4 cm long and 3-4 cm wide, with a narrow but distinct mucilaginous wing." [No evidence, no means of external attachment, and highly unlikely given large fruit and seed size]
702	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Propagules dispersed intentionally by people? Yes] "...widely if not commonly cultivated as a novelty because of its hanging, candle-like fruits."
703	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. Flora of Panama. Part IX. Family 172. Bignoniaceae. Annals of the Missouri Botanical Garden. 60(3): 781-977.	[Propagules likely to disperse as a produce contaminant? No] "Fruit elongate-linear, subterete in cross section, 39-54 cm long and 1.0-2.4 cm wide, glabrous to sparsely lepidote, waxy yellow, divided into a fleshy part surrounding the seeds and a fibrous central core surrounded by the seeds; seeds small, thin, 3-4 cm long and 3-4 cm wide, with a narrow but distinct mucilaginous wing." [No evidence, not grown with produce and highly unlikely given large fruit & seed size]
704	1974. Gentry, A.H.. Coevolutionary Patterns in Central American Bignoniaceae. Annals of the Missouri Botanical Garden. 6(3): 728-759.	[Propagules adapted to wind dispersal? No] "The fruits of <i>Parmentiera cereifera</i> , though fleshy and indehiscent, are superficially very similar to young fruits of <i>Tabebuia</i> and other <i>Tecomeae</i> . They have exactly the elongate linear form of <i>Tabebuia</i> fruit; more significantly, the seeds are vestigially winged. The very small seeds of <i>Parmentiera</i> are quite like immature <i>Tabebuia</i> seeds. It seems evident that <i>Parmentiera</i> has indeed been derived from a species of <i>Tecomeae</i> or proto <i>Tecomeae</i> with dehiscent fruit and winged seeds...It might be argued that it would be difficult for a species to make the critical change from dehiscent to indehiscent fruits, but an acceptable mechanism is readily available..."
705	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. Flora of Panama. Part IX. Family 172. Bignoniaceae. Annals of the Missouri Botanical Garden. 60(3): 781-977.	[Propagules water dispersed? No] "Dispersal of the small, slippery, slime-coated seeds is probably effected by mammals which eat the fruit." [No evidence, and distribution does not suggest any adaptation for water dispersal]
706	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. Flora of Panama. Part IX. Family 172. Bignoniaceae. Annals of the Missouri Botanical Garden. 60(3): 781-977.	[Propagules bird dispersed? No] "Dispersal of the small, slippery, slime-coated seeds is probably effected by mammals which eat the fruit." [No evidence of bird dispersal in native range]
707	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. Flora of Panama. Part IX. Family 172. Bignoniaceae. Annals of the Missouri Botanical Garden. 60(3): 781-977.	[Propagules dispersed by other animals (externally)? No] "Dispersal of the small, slippery, slime-coated seeds is probably effected by mammals which eat the fruit." [Fruits & seeds with no means of external attachment. Seeds adapted for gut passage]
708	1973. Woodson, Jr., R.E./Schery, R.W./Gentry, A.H.. Flora of Panama. Part IX. Family 172. Bignoniaceae. Annals of the Missouri Botanical Garden. 60(3): 781-977.	[Propagules survive passage through the gut? Yes] "Dispersal of the small, slippery, slime-coated seeds is probably effected by mammals which eat the fruit."
708	1974. Gentry, A.H.. Coevolutionary Patterns in Central American Bignoniaceae. Annals of the Missouri Botanical Garden. 6(3): 728-759.	[Propagules survive passage through the gut? Yes] "Although some wind-dispersed plants cope with monkeys and other frugivorous mammals and birds by developing thickened or spiny fruits, an alternate evolutionary solution takes advantage of attraction of fleshy young fruits to frugivores and utilizes these animals as dispersal vectors. Neotenus maturation of seeds and selection for fleshier more edible fruits would lead from the dehiscent <i>Tecomeae</i> fruit to the fruit of <i>Parmentiera</i> with no evolutionarily awkward inadapive gap. The succulent pulp of these fruits is avidly eaten by many mammals and they are often fed to cattle in Central America (Seemann, 1854; Standley, 1928). The central part of the <i>Parmentiera</i> fruit is fibrous-fleshy, and the seeds are situated between this core and the fleshy pericarp. Often the seeds and core remain uneaten. Probably the small mucilaginous seeds can also pass unharmed through a mammalian digestive system."
801	2011. Trade Winds Fruit. Troipical Seeds. <a href="http://www.tradewindsfruit.com/order.htm">http://www.tradewindsfruit.com/order.htm</a>	[Prolific seed production (>1000/m2)? Possibly] "Candle Stick Tree - Tropical tree producing thousands of long thin (up to 12") yellow fruits from its trunk and branches. Fruits are edible and the tree is a commonly planted ornamental, both for its exotic fruit and its beautiful flowers."
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a>	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown]
803	2011. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control
804	2011. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown]

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805 2011. WRA Specialist. Personal Communication. [Effective natural enemies present locally (e.g. introduced biocontrol agents)?  
Unknown]

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