

Key Words: Evaluate, Tropical Tree, Unarmed, N-fixing, Mimetic Seeds, Ornamental

Family: *Fabaceae*

Taxon: *Ormosia monosperma*

Synonym: *Ormosia dasycarpa* A. B. Jacks.
Sophora monosperma Sw. (*basionym*)

Common Name: necklace tree
bead tree
jumby bean
jumby tree

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation:	EVALUATE
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	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		y
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		
406	Host for recognized pests and pathogens		y=1, n=0		
407	Causes allergies or is otherwise toxic to humans		y=1, n=0		
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		y
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	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	y
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	
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	
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	
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	y
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: EVALUATE

WRA Score **1**

Supporting Data:

101	2012. WRA Specialist. Personal Communication.	[Is the species highly domesticated? No evidence]
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Species suited to tropical or subtropical climate(s) 2-High] "NATIVE Caribbean - Venezuela"
201	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Species suited to tropical or subtropical climate(s) 2-High] "Caribbean: Trinidad and Tobago; West Indies [Lesser Antilles] Northern South America: Venezuela"
202	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Quality of climate match data 2-High]
203	2012. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/	[Broad climate suitability (environmental versatility)? Yes] Collected from 200 m elevation in Dominica to elevations up to 1480 m elevation in Venezuela. Elevation range exceeds 1000 m, demonstrating environmental versatility.
204	1980. Woodson, Jr., R.E./Schery, R.W./Dwyer, J.D. Et al.. Flora of Panama. Part V. Family 83. Leguminosae. Subfamily Papilionoideae (Conclusion). Annals of the Missouri Botanical Garden. 67(3): 523-818.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Ormosia is a genus of some 100 species, approximately half of which are American tropical rain forest elements and the remainder of the Old World. This Asian-American disjunct distribution is curious, with no single species common to both hemispheres."
204	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Native or naturalized in regions with tropical or subtropical climates? Yes] "NATIVE Caribbean - Venezuela"
205	1985. Smith, A.C.. Flora Vitiensis Nova: A New Flora of Fiji (Spermatophytes Only). Volume 3. National Tropical Botanical Garden, Lawai, HI	[Does the species have a history of repeated introductions outside its natural range? Yes] "occasionally cultivated in Fiji near sea level." ... "Distribution: Lesser Antilles to Trinidad and northeastern Venezuela, cultivated elsewhere, in the Pacific at least in Java and Hawaii."
205	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Does the species have a history of repeated introductions outside its natural range? Cook Islands] "Introduced - Recent, Not naturalised; S.Group (RR only); Land, lowlands, gardens"
205	2010. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 10 (Fabaceae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Does the species have a history of repeated introductions outside its natural range? Taiwan] "Ormosia monosperma (Swartz) Urban was reported for Taiwan by F. C. Ho (J. Taiwan Mus. 36(2): 1-5. 1983), but the species is not known as an escape, only as a cultivated ornamental."
301	1985. Smith, A.C.. Flora Vitiensis Nova: A New Flora of Fiji (Spermatophytes Only). Volume 3. National Tropical Botanical Garden, Lawai, HI	[Naturalized beyond native range? No evidence from Fiji] "A tree to 17 m. high where indigenous, occasionally cultivated in Fiji near sea level. The leaflets, usually 7-11, are up to 20 x 6 cm., and the petals are dark purple, the standard with a white spot."
301	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Naturalized beyond native range? No evidence from Cook Islands] "COOK ISLANDS STATUS: Introduced - Recent, Not naturalised; S.Group (RR only); Land, lowlands, gardens"
301	2007. Randall, R.P.. Global Compendium of Weeds - Index. http://www.hear.org/gcw/	[Naturalized beyond native range? No evidence]
301	2010. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 10 (Fabaceae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Naturalized beyond native range? No evidence in Taiwan] "Ormosia monosperma (Swartz) Urban was reported for Taiwan by F. C. Ho (J. Taiwan Mus. 36(2): 1-5. 1983), but the species is not known as an escape, only as a cultivated ornamental."
302	2007. Randall, R.P.. Global Compendium of Weeds - Index. http://www.hear.org/gcw/	[Garden/amenity/disturbance weed? No evidence]
303	2007. Randall, R.P.. Global Compendium of Weeds - Index. http://www.hear.org/gcw/	[Agricultural/forestry/horticultural weed? No evidence]

304	2007. Randall, R.P.. Global Compendium of Weeds - Index. http://www.hear.org/gcw/	[Environmental weed? No evidence]
305	2007. Randall, R.P.. Global Compendium of Weeds - Index. http://www.hear.org/gcw/	[Congeneric weed? No evidence]
401	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Produces spines, thorns or burrs? No] "Tree to 20m. LEAVES compound with 7-11 leaflets, opposite+one (=imparipinnate); LEAFLETS oval to 20x6cm. INFLO open cluster; buds with red fuzz; flowers pea-like, petals dark purple, central petal with white centre."
401	2010. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 10 (Fabaceae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Produces spines, thorns or burrs? No] "Trees or shrubs; buds naked or subtended by stipules."
402	2012. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Parasitic? No] "Tree to 20m." [Fabaceae]
404	2012. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown]
405	1980. Woodson, Jr., R.E./Schery, R.W./Dwyer, J.D. Et al.. Flora of Panama. Part V. Family 83. Leguminosae. Subfamily Papilionoideae (Conclusion). Annals of the Missouri Botanical Garden. 67(3): 523-818.	[Toxic to animals? Unknown] "Seeds of several species have been tested as possible drug sources. The alkaloids ormosine and ormosonine have been isolated, possibly from <i>O. avilensis</i> or <i>O. venezolana</i> , with the former reportedly having a physiological effect resembling morphine (Hess & Merck, 1919). <i>Ormosia macrocalyx</i> , originally identified as <i>O. panamensis</i> , has yielded the alkaloid panamine, which induced hypotensive action in test dogs (Lloyd & Horning, 1958)."
405	1994. Linuma, M./Okawa, Y./Tanaka, T./Ho, F./Kobayashi, Y./Miyachi, K.. Anti-oral microbial activity of isoflavonoids in root bark of <i>Ormosia monosperma</i> . Phytochemistry. 37(3): 889-891.	[Toxic to animals? Unknown. Medicinal properties] "From the root bark of <i>Ormosia monosperma</i> , 10 isoflavonoids including two new compounds 7,4'-dihydroxy 6",6" dimethylpyrano-(2",3":5,6)-8-(3-methyl 1,3 butadienyl)isoflavone, named ormosidin, and dalbergion 4'-O-β-D-glucopyranoside, were isolated. These structures were confirmed by spectroscopic analysis. 2,3 Dihydroauriculatin, one of the compounds isolated, showed moderate activities against oral-microbial organisms (<i>Streptococcus mutans</i> , <i>Prophyromonas gingivalis</i> and <i>Actinomyces actinomycetemcomitans</i>)."
405	2002. Vozzo, J.A.. Tropical Tree Seed Manual. USDA Forest Service, Washington, D.C.	[Toxic to animals Seeds may be toxic] "South American species of <i>Ormosia</i> produce both red and bicolored (black and red) seeds, the production of which appears to be highly variable. While the red seeds are susceptible to bruchid attack, the bicolored seeds are highly toxic and rarely attacked by bruchids (Van Staden and others 1989)."
406	2007. Hernández, J.R./Piepenbring, M./Vega Rios, M.B.. A new species, <i>Dicheirinia panamensis</i> , and new records of rust fungi from Panama. Mycological Progress. 6(2): 81-91.	[Host for recognized pests and pathogens? Importance of rust unknown] "Abstract Based on a recent fieldwork in Panama, 25 species of rust fungi and several new hosts are reported for the first time from this country. Among the new records is one new species, <i>Dicheirinia panamensis</i> on <i>Cojoba rufescens</i> (Fabaceae). It differs from known species in the genus <i>Dicheirinia</i> by the presence of uredinia and telia without paraphyses, irregularly tuberculate urediniospores with two germ pores on the flattened sides, and tuberculate teliospores formed by three probasidial cells, subtended by a pedicel with three hyaline, apical cells." ... "D. solenioides (Henn.) Cummins was reported on <i>Ormosia monosperma</i> (Sw.) Urb. (= <i>Ormosia dasycarpa</i> Jacks.) and <i>Ormosia</i> sp. from Brazil (Cummins 1940; Jørstad 1959). It produces uredinia and telia with cylindrical hyaline paraphyses, triangular, echinulate urediniospores, and teliospores with two prominently echinulate probasidial cells."
407	1980. Woodson, Jr., R.E./Schery, R.W./Dwyer, J.D. Et al.. Flora of Panama. Part V. Family 83. Leguminosae. Subfamily Papilionoideae (Conclusion). Annals of the Missouri Botanical Garden. 67(3): 523-818.	[Causes allergies or is otherwise toxic to humans? Unknown. Medicinal uses] "Leaves, bark, and roots are used alone or in combination with other drug plants for a wide variety of ailments and maladies. In eastern Venezuela, <i>Ormosia monosperma</i> (" <i>pionia montanero</i> ") is utilized as follows: "the seed used by doctor; cook seed and drink for pains of the heart; also cooked seed placed in water, given to children to put around their necks for sore throat" (collectors notes, Steyermark 61330 [MO])."
408	2012. WRA Specialist. Personal Communication.	[Creates a fire hazard in natural ecosystems? Unknown]

409	1999. Lindsay, K./Horwith, B.. A Vegetation Classification of St. Kitts and Nevis: Implications for Conservation. Eastern Caribbean Biodiversity Programme, St. John's, Antigua	[Is a shade tolerant plant at some stage of its life cycle? Probably Yes. Survives in forest understory] "Mid-level understory: Bambusa sp., Ormosia monosperma, Aniba bracteata, Cyathea arborea, Heliconia spp., Fareaea occidentalis, Cecropia peltata, Hedysmum arborescens, Hirtella triandra, Miconia spp. and other members of the Melastomataceae, Fareaea occidentalis, Philodendron spp. (in trees) and Euterpe globosa."
410	2012. WRA Specialist. Personal Communication.	[Tolerates a wide range of soil conditions? Unknown]
411	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Climbing or smothering growth habit? No] "Tree to 20m."
412	1978. Steyermark, J.A.. Ormosia monosperma (Sw.) Urb. Collection Number 117020. Accession 3015264. Missouri Botanical Garden Herbarium. http://www.tropicos.org/Specimen/3203194	[Forms dense thickets? No evidence] "Cerros del Bachiller, western sector: virgin evergreen forest, between base and summit, above Quebrada Bachiller, south of Caño Rico and Bachiller" [Venezuela, Miranda]
412	1987. Daly, D.C.. Ormosia monosperma (Sw.) Urb. Collection Number 5284 . Accession 3868865. Missouri Botanical Garden Herbarium. http://www.tropicos.org/Specimen/2369748	[Forms dense thickets? No evidence] "Morne Aca, ca. 15 km SSE of Rivière Pilote, Semi-deciduous forest on steep slope." [Caribbean, Windward Islands, Martinique]
412	1992. Kendall. Ormosia monosperma (Sw.) Urb. Collection Number 55. Accession 5337161. Missouri Botanical Garden Herbarium. http://www.tropicos.org/Specimen/2367009	[Forms dense thickets? No evidence] "St. Paul Parish. Corona Estate. Growing in drainage area along newly cut road." [Caribbean, Leeward Islands, Dominica]
412	2010. FAO. Countries - Closed forests - Trinidad and Tobago [Accessed 17 Aug 2012]. http://www.fao.org/forestry/country/61326/en/tto/	[Forms dense thickets? No evidence] "There is no great floristic affinity between the Byrsonima-Licania association of Trinidad and Tobago and the Licania Oxythece association of the Antilles. The two associations have one of the principal dominants in common, Licania ternatensis, but Oxythece pallida is an endemic species of the Lesser Antilles while Byrsonima spicata behaves entirely differently in those islands. It is never found in the montane zone and occurs only occasionally in seasonal and dry evergreen vegetation of the lower country. Other species shared by the two associations are Sterculia caribaea, Micropholis chrysophylloides, Buchenavia capitata, Symphonia globulifera, Ormosia monosperma, Richeria grandis, Manilkara bidentata, Pithecellobium jupunba and Hieronyma caribaea. The elfin woodland in Trinidad is a co-association of Clusia intertexta and is thus related to the gregarious Clusia venosa (Beard, 1949)."
501	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Aquatic? No] "Tree to 20m."
502	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Grass? No] Fabaceae
503	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Nitrogen fixing woody plant? Yes] Fabaceae
504	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Tree to 20m."
601	1998. Homer, F./Lal, K./Johnson, W.. Forest species regeneration and management options in the Melajo Nature Reserve, Trinidad and Tobago. Environmental Conservation. 25(1): 53-64.	[Evidence of substantial reproductive failure in native habitat? No evidence]
602	1985. Smith, A.C.. Flora Vitiensis Nova: A New Flora of Fiji (Spermatophytes Only). Volume 3. National Tropical Botanical Garden, Lawai, HI	[Produces viable seed? Yes] "The fruits are densely velutinous, up to 6 x 3.5 x 2 cm. and with 1 -3 seeds, these red and black and up to 17 x 17 x 11 mm. Fruits have been noted in Fiji in January."
602	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Produces viable seed? Yes] "FRUITS with brown fur; 6x4x2cm. SEEDS 1, circular, red and black."
603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]

604	1985. Bawa, K.S./Perry, D.R./Beach, J.H.. Reproductive Biology of Tropical Lowland Rain Forest Trees. I. Sexual Systems and Incompatibility Mechanisms. American Journal of Botany. 72(3): 331-345.	[Self-compatible or apomictic? Possibly No] "An overwhelming majority of hermaphroditic species were found to be self-incompatible." [Ormosia spp. Listed as hermaphroditic]
605	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Requires specialist pollinators? No evidence] "INFLO open cluster; buds with red fuzz; flowers pea-like, petals dark purple, central petal with white centre." [Flowers do not appear to be specialized]
606	2012. WRA Specialist. Personal Communication.	[Reproduction by vegetative fragmentation? Unknown]
607	2012. WRA Specialist. Personal Communication.	[Minimum generative time (years)? Unknown]
701	2010. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 10 (Fabaceae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No evidence] "Legumes woody or leathery, 2(or 3) valved, rarely indehiscent, ovate to oblong or obovate, laterally compressed to nearly cylindric; valves internally septate between seeds or without septae; sutures without wings; calyx persistent or deciduous. Seeds 1 to many, red, scarlet, brown, or black, sometimes 2-toned; hilum seldom over 1/2 length of seed, white; cotyledon often fleshy." [Seeds lack means of external attachment - Genus description]
702	1980. Woodson, Jr., R.E./Schery, R.W./Dwyer, J.D. Et al.. Flora of Panama. Part V. Family 83. Leguminosae. Subfamily Papilionoideae (Conclusion). Annals of the Missouri Botanical Garden. 67(3): 523-818.	[Propagules dispersed intentionally by people? Yes] "While lacking major economic importance, most species do yield wood of good quality. In Panama, various species are used locally for building and furniture construction. This genus finds greatest importance among native peoples for personal adornment and medicinal preparations. The bright red seeds are used in necklaces, hence the common name "necklace tree."
703	1965. Neal, M.C. In Gardens of Hawaii. Bishop Museum Press, Honolulu, HI	[Propagules likely to disperse as a produce contaminant? Not likely] "Pod 1.5 inches long, with one seed (0.5 inch diameter)." [Pods & seeds relatively large. Unlikely to become a seed contaminant]
704	2010. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 10 (Fabaceae). Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	[Propagules adapted to wind dispersal? No evidence or apparent adaptations for wind dispersal] "Legumes woody or leathery, 2(or 3) valved, rarely indehiscent, ovate to oblong or obovate, laterally compressed to nearly cylindric; valves internally septate between seeds or without septae; sutures without wings; calyx persistent or deciduous. Seeds 1 to many, red, scarlet, brown, or black, sometimes 2-toned; hilum seldom over 1/2 length of seed, white; cotyledon often fleshy." [Seeds lack means of external attachment - Genus description]
705	1957. Steyermark, J.A.. Contributions to the flora of Venezuela. Fieldiana, Botany Series. 28(4): 679-1225.	[Propagules water dispersed? Possibly. Occurs along rivers] "along Rio Zumbador and tributary near base of Piedra Blanca, northeast of Bergantin, alt. 1100-1450 m"
705	2002. Galetti, M.. Seed dispersal of mimetic fruits: parasitism, mutualism, aposematism or exaptation? Pp 177-191 in Seed dispersal and frugivory: ecology, evolution and conservation. CAB International, Wallingford, UK	[Propagules water dispersed? Unknown. Possibly] "...several species of Ormosia that occur in flooded forests and have indehiscent fruits are dispersed by water (hydrochory) (Ziburski, 1991; Janson, 1992)."
706	1996. Peres, C.A./van Roosmalen, M.G.M.. Avian Dispersal of "Mimetic Seeds" of Ormosia lignivalvis by Terrestrial Granivores: Deception or Mutualism?. Oikos. 75(2): 249-258.	[Propagules bird dispersed? Possibly Yes. Mimetic seeds] "All species produce brightly-colored, scarlet and-black or uniform red seeds, which have been used as body adornments by native Amerindians since pre-Columbian days (hence its Greek-derived name, hormos= necklace)."

706	1998. Foster, M.S./Delay, L.S.. Dispersal of Mimetic Seeds of Three Species of <i>Ormosia</i> (Leguminosae). <i>Journal of Tropical Ecology</i> . 14(4):; 389-411.	[Propagules bird dispersed? Possibly Yes, based on genus characteristics] "Seeds with 'imitation arils' appear wholly or partially covered by pulp or aril but actually carry no fleshy material. The mimetic seed hypothesis to explain this phenomenon proposes a parasitic relationship in which birds are deceived into dispersing seeds that resemble bird dispersed fruits, without receiving a nutrient reward. The hard-seed for grit hypothesis proposes a mutualistic relationship in which large, terrestrial birds swallow the exceptionally hard mimetic seeds as grit for grinding the softer seeds on which they feed. They defec- ate, dispersing the seeds, and abrade the seed surface, enhancing germination. Any fruit mimicry is incidental. Fruiting trees of <i>Ormosia</i> spp. (Leguminosae: Papilionoideae) were observed to ascertain mechanisms of seed dispersal and the role of seemingly mimetic characteristics of the seeds in that dispersal. Seed pre- dation and seed germination were also examined. <i>Ormosia isthamensis</i> and <i>O. macro- calyx</i> (but not <i>O. bopiensis</i>) deceived arboreally-foraging frugivorous birds into taking their mimetic seeds, although rates of seed dispersal were low. These results are consistent with the mimetic seed hypothesis." ... "Mimetic seeds are especially well represented among legumes in the genus <i>Ormosia</i> (Ridley 1930, van der Pijl 1982). Seeds of <i>Ormosia</i> spp. are hard, shiny, and bright red, yellow, or black, or bicoloured red and black or red and yellow (Knaap van Meeuwen 1962, Merrill & Chen 1943, Rudd 1965, van der Pijl 1982). The pod may be contrastingly coloured (Dillon 1980, Rudd 1965). Such seeds are assumed to mimic unicoloured fleshy fruits or bicoloured arillate seeds of the many tropical plants whose seeds are black with a bright, shiny, red aril Janson 1983, Wheelwright & Janson 1985, Willson et al. 1989)." ... "Because most of the <i>Ormosia</i> spp. seeds taken by arboreal birds were swallowed, they also were dispersed away from the parent tree."
706	2002. Galetti, M.. Seed dispersal of mimetic fruits: parasitism, mutualism, aposematism or exaptation? Pp 177-191 in <i>Seed dispersal and frugivory: ecology, evolution and conservation</i> . CAB International, Wallingford, UK	[Propagules bird dispersed? Possibly] "Fifty species of <i>Ormosia</i> occur in the neotropics and 50 others in the Old World (Rudd, 1965). A puzzling aspect of this genus is that even indehiscent species have colourful seeds and one dehiscent species has totally black seeds ... Assuming that species with abiotic dispersal mechanism and indehiscent fruits represent the pleisomorphic (ancestral) state of Papilionoidea (Janson, 1992), we suggest that seed colour cannot be interpreted as an adaptation to present-day seed-dispersers."
707	1965. Neal, M.C. In <i>Gardens of Hawaii</i> . Bishop Museum Press, Honolulu, HI	[Propagules dispersed by other animals (externally)? No evidence] "Pod 1.5 inches long, with one seed (0.5 inch diameter)." [No means of external attachment. If dispersed by animals, mimetic display suggests adaptation for internal dispersal]
708	1998. Foster, M.S./Delay, L.S.. Dispersal of Mimetic Seeds of Three Species of <i>Ormosia</i> (Leguminosae). <i>Journal of Tropical Ecology</i> . 14(4):; 389-411.	[Propagules survive passage through the gut? Presumably Yes] "Although the existence of mimicry and deceit is arguable, several observations support that interpretation. For example, none of the arboreal bird species observed taking the <i>Ormosia</i> seeds uses grit. In fact, most of the birds that visited <i>Ormosia</i> spp. Are known frugivores. The foraging manoeuvres they used are consistent with those generally directed toward fleshy fruits (e.g., Foster 1987, Greenberg et al. 1995, McDiarmid et al. 1977, Trainer & Will 1984), although they may also be appropriate for seed-eating." ... "Because most of the <i>Ormosia</i> spp. seeds taken by arboreal birds were swallowed, they also were dispersed away from the parent tree"
801	1941. Beard, J.S.. <i>Ormosia monosperma</i> (Sw.) Urb. Collection Number 240. Accession 1287471. Missouri Botanical Garden Herbarium. http://www.tropicos.org/Specimen/2366136	[Prolific seed production (>1000/m ²)? Unlikely. Single-seeded pods] "Tree 40 m. high. in rain-forest; trunk 60 cm. diam.: pod with 1 seed, rarely 2: seeds red. Timber useful. "
801	1965. Neal, M.C. In <i>Gardens of Hawaii</i> . Bishop Museum Press, Honolulu, HI	[Prolific seed production (>1000/m ²)? Unlikely] "A West Indian tree with compound, pinnately divided leaves, has blue flowers in rusty panicles and thick pods, each with one large red and black seed. The seed are made into necklaces."
801	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Prolific seed production (>1000/m ²)? Unlikely. Single-seeded pods] "FRUITS with brown fur; 6x4x2cm. SEEDS 1, circular, red and black."

802	1998. Foster, M.S./Delay, L.S.. Dispersal of Mimetic Seeds of Three Species of <i>Ormosia</i> (Leguminosae). <i>Journal of Tropical Ecology</i> . 14(4):; 389-411.	[Evidence that a persistent propagule bank is formed (>1 yr)? Yes. Presumably shares traits of hard seeded legumes of this genus] "...the rates of disappearance of seeds from the ground under the <i>Ormosia</i> trees, hardness of the seeds, and enhancement of germination with the abrasion of the seed coat are all consistent with the hard-seed for grit hypothesis." ... "Our preliminary data and literature reports (Uhl 1987) indicated that intact <i>Ormosia</i> seeds have a long dormancy period." ... "In trials by a seed bank company in Brazil, untreated <i>Ormosia</i> spp. Seeds remained dormant (even after a year under proven germination conditions) until mechanically scarified (Peres & van Roosmalen 1996). Likewise, many legume seeds become permeable to water after treatment with acid, which suggests that passage through an avian gut may also improve germination (Van Staden et al. 1989)."
803	2012. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of any species in the genus <i>Ormosia</i>
804	2012. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown]
805	2012. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents) Unknown]

Summary of Risk Traits

High Risk / Undesirable Traits

- Thrives in tropical climates
- Elevation distribution exceeds 1000 m in native range
- Nitrogen fixing tree can alter soil nutrients and chemistry
- Mimetic seeds may potentially be bird-dispersed
- Hard-coated seeds may form a persistent seed bank

Low Risk / Desirable Traits

- No records of naturalization or weediness elsewhere
- Unarmed (no spines, thorns or burrs)
- Landscaping and ornamental value
- Bright red seeds are used in necklaces
- Relatively large pods & seeds unlikely to be inadvertently dispersed