Taxon: Ficus nota (Blanco) Merr. **Family:** Moraceae

Common Name(s): sacking tree
tibig

Synonym(s): Ficus aspera Blanco var. nota Blanco

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 5 Nov 2019

WRA Score: 8.0 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Naturalized Tree, Non-Strangling, Dioecious, Animal Dispersed, Water Dispersed

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
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	n
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		
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		
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens		
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		

Qsn #	Question	Answer Option	Answer
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	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		
604	Self-compatible or apomictic	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	y
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)		
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	n
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	y
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	**Is the species highly domesticated?**	**n**
	Source(s)	**Notes**
	Merrill, E. D. (1904). New or noteworthy Philippine plants, II. Bureau of Public Printing, Manila	[No evidence] "Ficus nota is a common tree in the Philippine forests, both in the lowlands and in the hills, reaching a height of from 8 to 10 m. and a diameter of 25 cm. or less. The abundant, milky sap when coagulated is similar in appearance and physical characters to the gum of Achras sapota, "Gum chicle" of commerce, which is so extensively used for the manufacture of chewing gum. This species is well known to the natives, although the native names are also sometimes applied to other species of the genus that have a similar cauline inflorescence."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. (2019). Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. (2019). Personal Communication	NA

201	**Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"**	**High**
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 30 Oct 2019]	"Native Asia-Tropical MALESIA: Malaysia, [Sabah, Sarawak] Philippines"

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 30 Oct 2019]	

Qsn #	Question	Answer
203	**Broad climate suitability (environmental versatility)**	**n**
	Source(s)	**Notes**
	Jansen, P.C.M., Jukema, J., Oyen, L.P.A. & van Lingen, T.G., (1991). Ficus nota (Blanco) Merr.. In: Verheij, E.W.M. and Coronel, R.E. (Editors): Plant Resources of South-East Asia No 2: Edible fruits and nuts. PROSEA Foundation, Bogor, Indonesia. prota4u.org/prosea	"Common in the Philippines in thickets and forests at low and medium altitudes."

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	Source(s)	**Notes**
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	"Ficus nota (Blanco) Merrill New naturalized record Native to the Philippines and northern Borneo, around 25,000 trees of F. nota were planted on Kaua‘i, O‘ahu, and Hawai‘i between 1922 and 1932, the majority (over 21,000 trees) on the Big Island (Skolmen, n.d.). It appears that the species is reseeding itself and spreading. The species is dioecious, with sandpapery, elliptic to obovate leaves 6–14 in. long and ± asymmetrical at the base; the pear-shaped figs are 0.6–1.4 in. in diameter and produced on cauliflorous branchlets up to 1 ft long on the trunk and larger branches. Material examined: O‘AHU: Püpükea, lower forest, planted and reseeding itself, 8 May 1967, O. & I. Degener 31910; Waiähole ditch trail, 1190 ft., scattered along the trail, 26 Aug 1972, T. Heart 252; Waiähole Valley, near water tunnel entering Uwao Stream, 240 m., 2 Dec 1984, W. L. Wagner et al. 5499. HAWAI‘I: Hämäkua District, Kawiki forest reserve above ‘Akaka Falls, Eucalyptus-strawberry guava forest, 1900 ft., tree naturalized and spreading into native ‘öhia forest, 24 Jul 1992, W. Takeuchi et al. 7540."
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 30 Oct 2019]	"Native Asia-Tropical MALESIA: Malaysia, [Sabah, Sarawak] Philippines"

205	**Does the species have a history of repeated introductions outside its natural range?**	**n**
	Source(s)	**Notes**
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	"Native to the Philippines and northern Borneo, around 25,000 trees of F. nota were planted on Kaua‘i, O‘ahu, and Hawai‘i between 1922 and 1932, the majority (over 21,000 trees) on the Big Island (Skolmen, n.d.)."

301	**Naturalized beyond native range**	**y**
	Source(s)	**Notes**

Qsn #	Question	Answer
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	"Native to the Philippines and northern Borneo, around 25,000 trees of F. nota were planted on Kauaʻi, Oʻahu, and Hawaiʻi between 1922 and 1932, the majority (over 21,000 trees) on the Big Island (Skolmen, n.d.). It appears that the species is reseeding itself and spreading. The species is dioecious, with sandpapery, elliptic to obovate leaves 6–14 in. long and ± asymmetrical at the base; the pear-shaped figs are 0.6–1.4 in. in diameter and produced on cauliflorous branchlets up to 1 ft long on the trunk and larger branches. Material examined: OʻAHU: Püpükea, lower forest, planted and reseeding itself, 8 May 1967, O. & I. Degener 31910; Waiähole ditch trail, 1190 ft., scattered along the trail, 26 Aug 1972, T. Heart 252; Waiähole Valley, near water tunnel entering Uwao Stream, 240 m., 2 Dec 1984, W. L. Wagner et al. 5499. HAWAIʻI: Hämäkua District, Kawiki forest reserve above ʻAkaka Falls, Eucalyptusstrawberry guava forest, 1900 ft., tree naturalized and spreading into native ʻöhia forest, 24 Jul 1992, W. Takeuchi et al. 7540."

302	Garden/amenity/disturbance weed	n
	Source(s)	**Notes**
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	[Naturalized, but no negative impacts documented at time of this publication. No subsequent impacts found] "Native to the Philippines and northern Borneo, around 25,000 trees of F. nota were planted on Kauaʻi, Oʻahu, and Hawaiʻi between 1922 and 1932, the majority (over 21,000 trees) on the Big Island (Skolmen, n.d.). It appears that the species is reseeding itself and spreading."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	
	Source(s)	**Notes**
	Staples, G.W., Herbst, D.R & Imada, C.T. 2000. Survey of invasive or potentially invasive cultivated plants in Hawaiʻi. Bishop Museum Occasional Papers 65: 1-35	[Spreading into native forests. Potential to become an environmental weed] "HAWAIʻI: Hämäkua District, Kawiki forest reserve above ʻAkaka Falls, Eucalyptusstrawberry guava forest, 1900 ft., tree naturalized and spreading into native ʻöhia forest, 24 Jul 1992, W. Takeuchi et al. 7540."

305	Congeneric weed	y
	Source(s)	**Notes**
	Loope, L.L., Nagata, R.J. & Medeiros, A.C. 1992. Alien plants in Haleakala National Park Pp. 551-576 in Stone et al (eds) Alien plant invasions in native ecosystems of Hawaii. Coop. Nat. Park Resources Studies Unit, University of Hawaii, Honolulu, HI	"Chinese banyan, Ficus microcarpa. Chinese banyan is a strangling, aggressive invader on rocky walls of low-elevation stream courses and sea cliffs in lower Kipahulu. The several dozen known established plants present in the Park should be removed as soon as possible in order to prevent this species from taking over these habitats."

Qsn #	Question	Answer
	Weber, E. 2017. Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Ficus carica … The fast-growing tree has often escaped cultivation and has become invasive in several regions. The tree forms dense thickets crowding out native trees and understorey shrubs in river accompanying forests (Bossard et al., 2000). The dense foliage casts heavy shade, reducing growth of native plants under the crown." ... "Ficus microcarpa … Little is known about direct ecological effects of colonized host trees or invaded communities. The tree forms impenetrable thickets due to the numerous hanging aerial roots that likely shade out other plants. If laurel fig seedlings grow as epiphytes on trees they send aerial roots to the ground. This may affect the host tree by competing for light and nutrients and because of the constricting roots."
	Motooka, P., Castro, L., Nelson, D., Nagai, G. & Ching,L. 2003. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI	"Ficus microcarpa … Environmental impact: Besides shading with its broad canopy, it is a threat to host plants. Banyan roots are very destructive to infrastructures: pavement, home foundations, irrigation ditches."
	Oppenheimer, H.L. & Bartlett, R.T. (2000). New plant records from Maui, Oʻahu, and the Hawaiʻi Islands. Bishop Museum Occasional Papers 64: 1-10	[Impacts native plants] "Although F. macrophylla can be terrestrial, in most of the observations it seems to be epiphytic, at least when young. Eventually roots reach the ground, and the host tree will be smothered or broken by the sheer weight. Ficus macrophylla seems to favor Acacia koa, but small trees have also been noted on Metrosideros polymorpha var. glaberrima, Diospyros sandwicensis, and Schinus terebinthifolius."

401	Produces spines, thorns or burrs	n
	Source(s)	**Notes**
	Merrill, E. D. (1904). New or noteworthy Philippine plants, II. Bureau of Public Printing, Manila	[No evidence] "A medium-sized tree, with broadly ovate, cordate, acuminate leaves which are more or less pubescent, and subglobose, green or purplish receptacles which are borne in masses on specialized leafless branches from the trunk and larger branches. Ultimate branches brownish, usually densely pubescent, rarely nearly smooth. Leaves 15 to 25 cm. long, 9 to 15 cm. wide, the margins entire or usually more or less coarsely serrate above, the base cordate, often inequilateral, the apex abruptly short-acuminate, the upper surface usually rather harsh, densely pubescent on the midrib and nerves, and with few scattered hairs on the leaf surface, becoming glabrous or nearly so, the lower surface light brown when dry, usually uniformly softly pubescent throughout with short scattered hairs, often also with numerous small white papillae; nerves from the base, seven, the outer two obscure, submarginal, main nerves 8 or 9 pairs, ascending, prominent, especially beneath, the nerves and the larger branches anastomosing near the margin, forming a much-arched marginal nerve; petioles 1.5 to 3.5 cm. long, 4 mm. in diameter, densely pubescent; stipules deciduous, ovate-lanceolate, acuminate, 1 to 1.5 cm. long."

402	Allelopathic	n
	Source(s)	**Notes**
	WRA Specialist. (2019). Personal Communication	Unknown. No evidence found

Qsn #	Question	Answer
403	**Parasitic**	**n**
	Source(s)	**Notes**
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	"Trees are erect, up to 9 m high, or shrubby with crooked stems." [Moraceae. No evidence]

404	**Unpalatable to grazing animals**	
	Source(s)	**Notes**
	Asaad, C. O. et al. (2006). Evaluation of lesser-known and lesser-utilized feed resources in the Philippines. Improving Animal Productivity by Supplementary Feeding of Multinutrient Blocks, Controlling Internal Parasites and Enhancing Utilization of Alternate Feed Resources. IAEA, Vienna, Austria	[Ficus nota evaluated as a fodder plant. May be palatable as a fodder plant, but unknown if animals browse directly on fresh leaves on trees] "A study on lesser-known and lesser-utilized feed resources in the Philippines was conducted to evaluate the nutritive contents, in vitro digestibility using the gas production technique, and tannin contents. With knowledge of the tannin levels and management of the anti-nutritional components, these tanniniferous plants can be better utilized as ruminant feeds. The trees sampled were Premna odorata, Moringa oleifera, Erythrina variegata, Gliricidia sepium, Pterocarpus indicus, Spondia purpurea, Artocarpus heterophyllus, Ficus nota, Flamengia vestita, Ipomoea aquatic, Sesbania grandiflora, Muntingia calabura, Artocarpus blancoi, Cocus nucifera, Sandoricum koetjape, Psidium guajava and Erythrina variegata."

405	**Toxic to animals**	**n**
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2019). Ficus nota. http://tropical.theferns.info. [Accessed 4 Nov 2019]	"Known Hazards - None known"
	Arquion, C. D., Nuñeza, O. M., & Uy, M. M. (2015). Evaluating the potential cytotoxic activity of Ficus nota using brine shrimp lethality test. Bull Environ Pharmacol Life Sci, 4, 40-44	[Extracts phytotoxic to brine shrimp. No evidence that fruit or leaves are toxic to birds or mammals] "The plant species, Ficus nota locally known as “tibig” is traditionally used by the Manobo tribe in Talacogon, Agusan del Sur as an alternative medicine. However, there are no records or documentation on the phytochemical constituent or potential cytotoxicity of the stem of Ficus nota. This study was conducted to test for in vivo brine shrimp lethality of Ficus nota. Plant extracts were obtained through extraction of the stem samples with water and absolute ethanol. Three concentrations (100 ppm, 500 ppm, and 1000 ppm) of the extracts were tested and mortality of Artemia salina was noted after 24 h exposure. The results showed that both decoction and ethanolic extracts were active against the brine shrimp with LC50 values of 991.00 ppm and 852.22 ppm, respectively. Results indicated that both extracts may have substances that are cytotoxic and that active components of the plants are better extracted with absolute ethanol."
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

406	**Host for recognized pests and pathogens**	

Qsn #	Question	Answer
	Source(s)	**Notes**
	Howard, F.W., Pemberton, R.W., Hodges, G.S., Steinberg, B., McLean, D. & Liu, H. 2006. Host Plant Range of Lobate Lac Scale, Paratachardina lobata, in Florida. Proceedings of the Florida State Horticultural Society 119: 398-408	"Table 1. The host range of lobate lac scale, Paratachardina lobata, in southern Florida, species based on observations during 2002-2006, arranged in alphabetical order." [Includes Ficus nota]

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	**Notes**
	Tropical Plants Database, Ken Fern. (2019). Ficus nota. http://tropical.theferns.info. [Accessed 4 Nov 2019]	"Known Hazards - None known"
	Arquion, C. D., Nuñeza, O. M., & Uy, M. M. (2015). Evaluating the potential cytotoxic activity of Ficus nota using brine shrimp lethality test. Bull Environ Pharmacol Life Sci, 4, 40-44	[Extracts phytotoxic to brine shrimp. No evidence of acute toxicity to humans] "The plant species, Ficus nota locally known as “tibig” is traditionally used by the Manobo tribe in Talacogon, Agusan del Sur as an alternative medicine. However, there are no records or documentation on the phytochemical constituent or potential cytotoxicity of the stem of Ficus nota. This study was conducted to test for in vivo brine shrimp lethality of Ficus nota. Plant extracts were obtained through extraction of the stem samples with water and absolute ethanol. Three concentrations (100 ppm, 500 ppm, and 1000 ppm) of the extracts were tested and mortality of Artemia salina was noted after 24 h exposure. The results showed that both decoction and ethanolic extracts were active against the brine shrimp with LC50 values of 991.00 ppm and 852.22 ppm, respectively. Results indicated that both extracts may have substances that are cytotoxic and that active components of the plants are better extracted with absolute ethanol."
	Ecosystems Research and Development Bureau. (2012). Philippine Country Report on Forest Genetic Resources. ERDB, College, Laguna	[No evidence] "Appendix Table 9. Wildfood plants in the Philippines forest" … "Ficus nota … The young leaves are cooked as vegetables and the fruits are eaten raw when ripe. The sap of the freshly cut stems also yields drinkable water. The fresh of the cyconium fruits are used for ice cream flavour."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	**Notes**
	Merrill, E. D. (1904). New or noteworthy Philippine plants, II. Bureau of Public Printing, Manila	[No evidence that trees grow in fire prone habitat, or that milky sap is flammable] "Ficus nota is a common tree in the Philippine forests, both in the low lands and in the hills, reaching a height of from 8 to 10 m. and a diameter of 25 cm. or less. The abundant, milky sap when coagulated is similar in appearance and physical characters to the gum of Achras sapota"

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	[Ability to spread into native forest suggests seedlings are probably somewhat shade tolerant] "Material examined: O'AHU: Püpükea, lower forest, planted and reseeding itself, 8 May 1967, O. & I. Degener 31910; Waiähole ditch trail, 1190 ft., scattered along the trail, 26 Aug 1972, T. Herat 252; Waiähole Valley, near water tunnel entering Uwao Stream, 240 m., 2 Dec 1984, W. L. Wagner et al. 5499. HAWAI'I: Hämäkua District, Kawiki forest reserve above 'Akaka Falls, Eucalyptusstrawberry guava forest, 1900 ft., tree naturalized and spreading into native 'öhia forest, 24 Jul 1992, W. Takeuchi et al. 7540."
	Top Tropicals. (2019). Ficus nota. https://toptropicals.com/catalog/uid/ficus_nota.htm. [Accessed 4 Nov 2019]	Sun, semi-shade

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	"Grows in a variety of soils in areas with high humidity"

411	Climbing or smothering growth habit	n
	Source(s)	**Notes**
	Merrill, E. D. (1904). New or noteworthy Philippine plants, II. Bureau of Public Printing, Manila	"Ficus nota is a common tree in the Philippine forests, both in the lowlands and in the hills, reaching a height of from 8 to 10 m. and a diameter of 25 cm. or less." [No evidence]
	Williams, F. X. (1921). Some observations on figs in south-central Luzon, Philippine Islands. Hawaiian Sugar Planters' Association, Experiment Station. Hawaiian Planter's Record, 25: 202-225	"The common Tibig, Ficus nota Merr. (Fig. 21), is often conspicuous for its ample bunches of large figs, Fig. 22, which occur along trunk and branches. It is a small tree but an important element in many places along lowland streams and in cut-over lands." [No evidence]
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	[No aerial roots] "Trees are erect, up to 9 m high, or shrubby with crooked stems. In Florida, the trees are low and spreading, with trunks branching near the ground, probably because of having suffered occasional frost injury. No aerial roots were observed."

412	Forms dense thickets	n
	Source(s)	**Notes**
	Merrill, E. D. (1904). New or noteworthy Philippine plants, II. Bureau of Public Printing, Manila	"Ficus nota is a common tree in the Philippine forests, both in the lowlands and in the hills, reaching a height of from 8 to 10 m. and a diameter of 25 cm. or less."
	Gonzales, R. S., Ingle, N. R., Lagunzad, D. A., & Nakashizuka, T. (2009). Seed dispersal by birds and bats in lowland Philippine forest successional area. Biotropica, 41 (4): 452-458	[In this study, Ficus nota occurs at basal area densities of 12 m2/ha. A dominant species, but not described as forming thickets or dense stands] "A census covering ca 1 ha of the forest on the southeast revealed that it was predominated by two species of bamboo, Schizostachyum lumampao and another undetermined species (total BA = 410.6 m2/ha), that were interspersed among secondary growth forest species dominated by Macaranga tanarius, Diospyros sp., and Ficus nota (total BA = 12.0 m2/ha)."

Qsn #	Question	Answer
	Jansen, P.C.M., Jukema, J., Oyen, L.P.A. & van Lingen, T.G., (1991). Ficus nota (Blanco) Merr.. In: Verheij, E.W.M. and Coronel, R.E. (Editors): Plant Resources of South-East Asia No 2: Edible fruits and nuts. PROSEA Foundation, Bogor, Indonesia. prota4u.org/prosea	[Occurs in thickets, but no evidence that pure stands are formed] "Common in the Philippines in thickets and forests at low and medium altitudes."

501	Aquatic	n
	Source(s)	**Notes**
	Williams, F. X. (1921). Some observations on figs in south-central Luzon, Philippine Islands. Hawaiian Sugar Planters' Association, Experiment Station. Hawaiian Planter's Record, 25: 202-225	[Terrestrial] "It is a small tree but an important element in many places along lowland streams and in cut-over lands."

502	Grass	n
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 30 Oct 2019]	Genus: Ficus Section: Sycocarpus Family: Moraceae Tribe: Ficeae

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 30 Oct 2019]	Family: Moraceae Tribe: Ficeae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	**Notes**
	Merrill, E. D. (1904). New or noteworthy Philippine plants, II. Bureau of Public Printing, Manila	"A medium-sized tree, with broadly ovate, cordate, acuminate leaves which are more or Jess pubescent, and subglobose, green or purplish receptacles which are borne in masses on specialized leafless branches from the trunk and larger branches. Ultimate branches brownish, usually densely pubescent, rarely nearly smooth."

Qsn #	Question	Answer
601	**Evidence of substantial reproductive failure in native habitat**	**n**
	Source(s)	**Notes**
	Jansen, P.C.M., Jukema, J., Oyen, L.P.A. & van Lingen, T.G., (1991). Ficus nota (Blanco) Merr.. In: Verheij, E.W.M. and Coronel, R.E. (Editors): Plant Resources of South-East Asia No 2: Edible fruits and nuts. PROSEA Foundation, Bogor, Indonesia. prota4u.org/prosea	"Common in the Philippines in thickets and forests at low and medium altitudes." [No evidence]

602	**Produces viable seed**	**y**
	Source(s)	**Notes**
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	"Native to the Philippines and northern Borneo, around 25,000 trees of F. nota were planted on Kaua'i, O'ahu, and Hawai'i between 1922 and 1932, the majority (over 21,000 trees) on the Big Island (Skolmen, n.d.). It appears that the species is reseeding itself and spreading."
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	"Seeds are easily carried by water and adhere to clothing or to animals. Grows in a variety of soils in areas with high humidity"
	Williams, F. X. (1921). Some observations on figs in south-central Luzon, Philippine Islands. Hawaiian Sugar Planters' Association, Experiment Station. Hawaiian Planter's Record, 25: 202-225	"Seeds of this fig can be secured in quantity."

Qsn #	Question	Answer
603	**Hybridizes naturally**	
	Source(s)	**Notes**
	Weiblen, G. D. (2002). How to be a fig wasp. Annual Review of Entomology, 47(1), 299-330	[Unlikely, but in some instances, pollinators have been documented visiting more than one Ficus species, despite being "host specific"] "The general pattern of one-to-one host specificity is also supported by experimental evidence. An example of a natural experiment involves the colonization of volcanic islands, where population expansion by colonizing fig species depended on specific pollinator species (43). Furthermore, the naturalization of exotic Ficus species in North America has resulted from the introduction of specific pollinators from other continents (118). A few reports of breakdown in specificity involve visits of local pollinators to exotic Ficus (153), but fertile F1 hybrids resulting from pollinator “mistakes” have yet to be documented. Recent pollination experiments (162) and phylogenetic patterns (159) are also consistent with early attempts at fig breeding. Intraspecific crosses of F. carica were made by introducing B. psenes, to cultivars of the edible fig, but crosses between F. carica and Ficus pumila using the same technique failed because B. psenes could not be induced to enter figs of F. pumila (45). On the other hand, Ficus aurea × religiosa hybrid seedlings were reported in Florida, where Pegoscapus mexicanus, the local pollinator of F. aurea, was observed visiting exotic Ficus (137), and a similar breakdown of specificity involving a local pollinator and an exotic fig produced hybrids in Africa (32, 153). Hybrids have also been produced by artificial pollination (45), which suggests that host choice is an important pre-reproductive isolating mechanism, given that pollinators rarely make “mistakes” in natural populations (17)."

604	Self-compatible or apomictic	n
	Source(s)	**Notes**
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Dioecious] "These dioecious trees have solid twigs with glands at the nodes, alternate or opposite leaves, and elliptic to obovate blades 6-14" long,"

Qsn #	Question	Answer
605	**Requires specialist pollinators**	**y**
	Source(s)	**Notes**
	William Ramírez B. (1969). Fig Wasps: Mechanism of Pollen Transfer. Science, 163(3867), 580-581	"In New World Pharmacosycea and in Ficus nota and F. macrophylla (3) the anthers dehisce and pollen is shed apparently without the help of the wasps."
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	[Requires specialized pollinator wasp, which is presumably present at least on Oahu and Hawaii islands] "Native to the Philippines and northern Borneo, around 25,000 trees of F. nota were planted on Kaua‘i, O‘ahu, and Hawai‘i between 1922 and 1932, the majority (over 21,000 trees) on the Big Island (Skolmen, n.d.). It appears that the species is reseeding itself and spreading. The species is dioecious, with sandpapery, elliptic to obovate leaves 6–14 in. long and ± asymmetrical at the base; the pear-shaped figs are 0.6–1.4 in. in diameter and produced on cauliflorous branchlets up to 1 ft long on the trunk and larger branches."

606	Reproduction by vegetative fragmentation	n
	Source(s)	**Notes**
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	[No aerial roots. No evidence of vegetative spread] "Trees are erect, up to 9 m high, or shrubby with crooked stems. In Florida, the trees are low and spreading, with trunks branching near the ground, probably because of having suffered occasional frost injury. No aerial roots were observed."

607	Minimum generative time (years)	
	Source(s)	**Notes**
	WRA Specialist. (2019). Personal Communication	Unknown, but as a tree, probably more than 2 years.

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y
	Source(s)	**Notes**
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	"Seeds are easily carried by water and adhere to clothing or to animals. Grows in a variety of soils in areas with high humidity"

702	Propagules dispersed intentionally by people	y
	Source(s)	**Notes**
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	"Native to the Philippines and northern Borneo, around 25,000 trees of F. nota were planted on Kaua‘i, O‘ahu, and Hawai‘i between 1922 and 1932, the majority (over 21,000 trees) on the Big Island (Skolmen, n.d.)."

Qsn #	Question	Answer
703	**Propagules likely to disperse as a produce contaminant**	**n**
	Source(s)	**Notes**
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	"Seeds are easily carried by water and adhere to clothing or to animals. Grows in a variety of soils in areas with high humidity"

704	Propagules adapted to wind dispersal	n
	Source(s)	**Notes**
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	"This species is cauliflorous, with the figs borne mostly in fascicles from the stem and branches, on pubescent peduncles up to 1.1 cm long. The sterile figs are 3.5 cm in diameter, globular to oblate-spherical, with the surface pubescent but glossy, and decorated with prominent, white flecks which are thickly scattered, the larger ones with a corky spot in the center. The figs are green when young, but change to scarlet before dropping. The umbilicus is large and somewhat depressed. The interior is strawberry"

705	Propagules water dispersed	y
	Source(s)	**Notes**
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	"Banks of streams and in forests at low and medium altitudes. Seeds are easily carried by water and adhere to clothing or to animals."
	Williams, F. X. (1921). Some observations on figs in south-central Luzon, Philippine Islands. Hawaiian Sugar Planters' Association, Experiment Station. Hawaiian Planter's Record, 25: 202-225	"It is a small tree but an important element in many places along lowland streams and in cut-over lands." [Seeds possibly moved by water in riparian areas]

706	Propagules bird dispersed	y
	Source(s)	**Notes**
	Earth.com. (2019). Tibig (Ficus nota). https://www.earth.com/earthpedia/plant/ficus-nota/. [Accessed 30 Oct 2019]	"Ficus nota (tibig) is a species of tree found near water in low altitudes. The tree can grow up to 9 meters high. Its seeds are dispersed by birds."
	Staples, G.W., Herbst, D.R & Imada, C.T. 2000. Survey of invasive or potentially invasive cultivated plants in Hawai'i. Bishop Museum Occasional Papers 65: 1-35	"Table 2. Annotated checklist of invasive or potentially invasive cultivated plants in Hawai'i with dispersal syndrome" [Ficus nota - Disperal Syndrome = B = bird]
	Stier, S. C., & Mildenstein, T. L. (2005). Dietary habits of the world's largest bats: the Philippine flying foxes, Acerodon jubatus and Pteropus vampyrus lanensis. Journal of Mammalogy, 86(4), 719-728	[Not consumed by native bat species in this study] "Importantly, both bat species in this study appeared to be selective of the Ficus species they used, and many fig species in the foraging area showed no evidence of use at all. This was true of even the commonest of fig species (Ficus nota). Note that selection of Ficus is species specific (e.g., see Shanahan et al. 2001; Utzurrum 1984)."

707	Propagules dispersed by other animals (externally)	y
	Source(s)	**Notes**
	Condit, I. J. (1969). Ficus: The Exotic Species. University of California, Berkeley	"Seeds are easily carried by water and adhere to clothing or to animals. Grows in a variety of soils in areas with high humidity"

Qsn #	Question	Answer
708	**Propagules survive passage through the gut**	**y**
	Source(s)	**Notes**
	Staples, G.W., Herbst, D.R & Imada, C.T. 2000. Survey of invasive or potentially invasive cultivated plants in Hawai'i. Bishop Museum Occasional Papers 65: 1-35	[Presumably Yes] "Table 2. Annotated checklist of invasive or potentially invasive cultivated plants in Hawai'i with dispersal syndrome" [Ficus nota - Disperal Syndrome = B = bird]

801	**Prolific seed production (>1000/m2)**	
	Source(s)	**Notes**
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	"It appears that the species is reseeding itself and spreading. The species is dioecious, with sandpapery, elliptic to obovate leaves 6–14 in. long and ± asymmetrical at the base; the pear shaped figs are 0.6–1.4 in. in diameter and produced on cauliflorous branchlets up to 1 ft long on the trunk and larger branches." [Unknown. Ficus synconium contain numerous minute fruits; pollinator is present in the Hawaiian Islands]

802	**Evidence that a persistent propagule bank is formed (>1 yr)**	
	Source(s)	**Notes**
	WRA Specialist. (2019). Personal Communication	Unknown

803	**Well controlled by herbicides**	
	Source(s)	**Notes**
	Motooka, P., Castro, L., Nelson, D., Nagai, G. & Ching,L. 2003. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI	[Methods to control F. microcarpa may be effective] "The most effective way to kill large Chinese banyans is by placing 0.10-0.17 fl oz (3-5 ml) of herbicide into holes drilled into the trunk each foot around trunk. Because of the compartmentalization of the trunks from the rooted and merged adventitious roots, the trunks must be drilled at each segment to ensure effective control. This can best be done by making follow- up treatments after symptoms from earlier treatments reveal unaffected stem segments. Banyans strangling a host tree can be treated in this way with glyphosate without killing the host. Triclopyr and dicamba were also effective in killing banyan by applications to drilled holes."

804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	
	Source(s)	**Notes**
	WRA Specialist. (2019). Personal Communication	Unknown

805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Herbarium Pacificum Staff. (1998). New Hawaiian plant records for 1997. Bishop Museum Occasional Papers. 56:8 -14	[Unknown, but ability to naturalize suggests that any potential natural enemies are not preventing spread] "Native to the Philippines and northern Borneo, around 25,000 trees of F. nota were planted on Kaua‘i, O‘ahu, and Hawai‘i between 1922 and 1932, the majority (over 21,000 trees) on the Big Island (Skolmen, n.d.). It appears that the species is reseeding itself and spreading."

Summary of Risk Traits:

High Risk / Undesirable Traits
• Grows and able to spread in tropical climates
• Naturalized on Oahu, and Hawaii (Hawaiian Islands)
• Spreading in native forest; may impact native biodiversity
• Other Ficus species are invasive
• Tolerates many soil types
• Reproduces by seeds (specific pollinator present in Hawaiian Islands)
• Seeds dispersed by animals, water and both intentionally and accidentally by people

Low Risk Traits
• No negative impacts documented in Hawaiian Islands to date (despite widespread planting)
• Unarmed (no spines, thorns, or burrs)
• Non-toxic
• Non-strangling fig tree
• Dioecious (requires male and female trees for seed production)
• Not reported to spread vegetatively