

Family: *Fabaceae*

Taxon: *Inga laurina*

Synonym: *Inga fagifolia* (L.) Willd. ex Benth.
Mimosa fagifolia L.
Mimosa laurina Sw. (basionym)

Common Name: guama
pois doux
sacky sac bean
sweet-pea
Spanish oak

Questionnaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** EVALUATE
Status: Assessor Approved **Data Entry Person:** Chuck Chimera **WRA Score 6**

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	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	n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	
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	n
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens	y=1, n=0	y
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	y

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	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	n
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	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)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: EVALUATE

WRA Score 6

Supporting Data:

101	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	No evidence that <i>Inga laurina</i> is highly domesticated
102	2010. WRA Specialist. Personal Communication.	NA
103	2010. WRA Specialist. Personal Communication.	NA
201	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The native range of guama (fig. 2) includes the Greater Antilles, except Cuba, where it is naturalized (5); the Virgin Islands; Antigua; Saba; St. Kitts; Montserrat; Guadeloupe; Marie Galante; Dominica; Martinique; St. Vincent; Grenada; Barbados in the Lesser Antilles; and Trinidad (13, 16),"
202	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	See 2.01 [Highly adapted for tropical & subtropical climates]
203	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"Guama is adapted to moist and wet forests, with mean annual rainfall from 1400 to 3500 mm. The species also grows in drier areas on alluvial soils along perennial or intermittent streams. Dry seasons of up to 3 months are a feature of the climate of most of the islands where guama grows. Mean annual temperatures within the native range of guama range from about 23 to 26 °C, depending mainly on altitude. Temperatures rarely exceed 32°C or drop below 15 °C. Frosts are unknown in the native range of guama."
204	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The native range of guama (fig. 2) includes the Greater Antilles, except Cuba, where it is naturalized (5); the Virgin Islands; Antigua; Saba; St. Kitts; Montserrat; Guadeloupe; Marie Galante; Dominica; Martinique; St. Vincent; Grenada; Barbados in the Lesser Antilles; and Trinidad (13, 16),"
205	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	No evidence
301	1964. Little, Jr. E.L./Wadsworth, F.H.. Common trees of Puerto Rico and the Virgin Islands. Agriculture Handbook No. 249. U.S.D.A. Forest Service, Washington, D.C	"Introduced into Cuba for coffee shade."
301	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The native range of guama (fig. 2) includes the Greater Antilles, except Cuba, where it is naturalized..."
302	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence
303	2010. WRA Specialist. Personal Communication.	No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence
305	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	"Table 1. Complete list of the introduced plant taxa encountered in Puerto Villamil... <i>Inga edulis</i> ...Es) Escaped (introduced for culture, naturalized" [but no impacts or control efforts described]
401	1950. Allen, C.K.. Flora of Panama. Part V. Fascicle II. Annals of the Missouri Botanical Garden. 37(2): 121-314.	"Unarmed trees or shrubs"
401	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	No spines, thorns or burrs
402	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"One of the reasons that guama was extensively planted as coffee shade is because it fixes nitrogen through symbiotic association with Rhizobium bacteria in its root nodules. It has also been shown that nitrogen fixation takes place through an unknown mechanism in the lenticular bark (29)." [unlikely to be allelopathic]

403	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	Not parasitic
404	1980. Milton, K.. The foraging strategy of howler monkeys: a study in primate economics. Columbia University Press, New York	"Table 4.8... <i>Inga fagifolia</i> ...Categories Eaten ... L" [leaves of <i>Inga fagifolia</i> (syn.) eaten by Howler monkeys]
404	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"Livestock readily consume the pods (14)."
405	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"Livestock readily consume the pods (14)." [no evidence of toxicity to animals]
406	2000. Schroth, G./Krauss, U./Gasparotto, L./Duarte Aguilar, J. A./Vohland, K.. Pests and diseases in agroforestry systems of the humid tropics. <i>Agroforestry Systems</i> . 50: 199–241.	"...the use as coffee shade of <i>L. leucocephala</i> in Java and of <i>Inga laurina</i> and <i>Inga vera</i> in Puerto Rico were discouraged because these species were alternative hosts of coffee pests... in the latter case of the mite <i>Myrmelachista ambigua</i> (Le Pelley, 1973)."
407	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The small amount of white pulp surrounding the seeds is very sweet and is sometimes eaten by children." [no evidence of toxicity to humans]
408	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"adapted to moist and wet forests, with mean annual rainfall from 1400 to 3500 mm..." [unlikely to create fire hazards]
409	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"After germination under shade, the stems elongate about 6 cm before fully developing the first pair of leaves (author, personal observation). Grown under shade, a group of containerized seedlings reached an average height of 22 cm in 8 months after sowing...Guama is intermediate in tolerance to intolerant of shade. Seedlings will survive light to medium shade. Seedlings established by direct seeding under shade averaged 36 and 76 cm in height after 1 and 2 years, respectively. Corresponding heights of seedlings grown in full sun averaged 40 and 122 cm after 1 and 2 years (20). Adult trees retain vigor surprisingly well in lower canopy positions."
410	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"Guama is able to grow on a wide variety of soils and sites, including soils with textures from sands to clays (20). The species grows on soils originating from many kinds of parent material. Soil pH at least as low as 5.0 and moderately low levels of exchangeable cations seem to be adequate for guama. Soils can be poorly drained, but not swampy. Excessively drained soils due to sand or skeletal rock or shallow soils in areas of minimum rainfall will not support the species."
411	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"a medium-sized (fig. 1) evergreen tree native to the Greater and Lesser Antilles.. It is common in moist and wet forests, especially secondary forests."
412	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"In a subtropical wet forest stand dominated by <i>Dacryodes excelsa</i> Vah., <i>Euterpe globosa</i> Gaertn., <i>Cecropia schreberiana</i> Miq., <i>Micropholis garcinifolia</i> Pierre, <i>Slonea berteriana</i> Choisy, <i>Cyrtilla rocemiflora</i> L., and <i>Magnolia splendens</i> Urban, guama contributed only 72 of a total of 3,100 stems (25). In another subtropical wet forest dominated by <i>C. rocemiflora</i> L., <i>Micropholis garcinifolia</i> , and <i>Magnolia splendens</i> , guama contributed 28 of 3,400 stems (25)...Although widely distributed, guama normally constitutes: only a small percentage of the total basal area of the forests where it grows." [low tree density in native range]
501	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	Terrestrial
502	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	Fabaceae

503	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"Guama roots are endomycorrhizal, and they produce nodules, presumably associated with Rhizobium bacteria (10)."
504	1978. Croats, T.B.. Flora of Barro Colorado Island. Stanford University Press, Stanford	"Tree, 8(23) m" [not a geophyte]
601	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	No evidence of substantial reproductive failure in native habitat
602	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The flower spikes are white and brushlike, 8 to 15 cm long, and borne singly or in pairs. The flat pods, 6 to 12 cm long and 2 to 3 cm wide, contain several seeds (16)."
603	2010. WRA Specialist. Personal Communication.	Unknown
604	1992. Nielsen, I.E.. Flora Malesiana. Series I, Spermatophyta: Flowering plants. Volume 11 - part 1. Mimosaceae (Leguminosae-Mimosoideae). Rijksherbarium / Hortus Botanicus, Leiden, The Netherlands	"Self-incompatibility has been recorded from a few species of the genera Calliandra, Enterolobium, Inga, Leucaena, Pentaclethra, Pithecellobium, Prosopis and Samanea (Kenrick & Knox I.e.)." [unknown for <i>Inga laurina</i>]
605	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The flowers are an important source of nectar for honeybees (16)."
606	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"Small guama trees will coppice, but large trees will not (20)." [mostly propagates by seed]
607	2010. WRA Specialist. Personal Communication.	Unknown
701	1978. Croats, T.B.. Flora of Barro Colorado Island. Stanford University Press, Stanford	"Legumes flat and ribbed to bulged in the middle with raised margins at maturity, mostly 7-15 cm long, 1.5-2.5 cm wide" [no evidence of unintentional dispersal of relatively large pods and/or seeds. No means of external attachment]
702	1992. Nielsen, I.E.. Flora Malesiana. Series I, Spermatophyta: Flowering plants. Volume 11 - part 1. Mimosaceae (Leguminosae-Mimosoideae). Rijksherbarium / Hortus Botanicus, Leiden, The Netherlands	"Widely cultivated as an ornamental and for the sweet pulp."
703	1978. Croats, T.B.. Flora of Barro Colorado Island. Stanford University Press, Stanford	"Legumes flat and ribbed to bulged in the middle with raised margins at maturity, mostly 7-15 cm long, 1.5-2.5 cm wide" [although grown with coffee, no evidence that fairly large pods and/or seeds have been dispersed as a produce contaminant]
704	1978. Croats, T.B.. Flora of Barro Colorado Island. Stanford University Press, Stanford	"Legumes flat and ribbed to bulged in the middle with raised margins at maturity, mostly 7-15 cm long, 1.5-2.5 cm wide" [no specialized adaptations for wind dispersal; seeds bird dispersed. See 7.06]
705	2000. Liogier, A. H./ Martorell, L. F.. Flora of Puerto Rico and adjacent islands: a systematic synopsis. La Editorial, UPR, San Juan, Puerto Rico	"In woodlands, on hillsides and along streams, from lower to higher elevations, mostly in wet districts, Puerto Rico; West Indies, and from Mexico to Panama." [distribution suggests water dispersal along streams]
705	2007. Dennis, A.J./Schupp, E.W./Green, R.A./Westcott, D.A. (eds.). Seed dispersal: theory and its application in a changing world. CABI, Wallingford, UK	"Appendix 3... <i>Inga laurina</i> ...Seed disperser*...mammals+fish" [fish dispersal suggests seeds are deposited in water and survive in aquatic environments in which they would be deposited by fish]
706	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The seeds are dispersed by bats and birds that feed on the pods and/or the small amount of pulp surrounding the seeds. These animals may, in the process of feeding, carry the pods some distance from the mother tree (9, 20)."
707	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The seeds are dispersed by bats and birds... These animals may, in the process of feeding, carry the pods some distance from the mother tree (9, 20)." [external transport of seed pods]

708	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The seeds are dispersed by bats and birds that feed on the pods and/or the small amount of pulp surrounding the seeds. These animals may, in the process of feeding, carry the pods some distance from the mother tree (9, 20)." [apparently survive passage through gut]
801	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"a medium sized...The flat pods, 6 to 12 cm long and 2 to 3 cm wide, contain several seeds." [fairly large seeds & pods that lose viability rapidly. Unlikely to produce such high seed densities]
802	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"The seeds will not retain their viability if dried...It is best to sow the seeds immediately after collection, but if this is not possible, the whole pods may be refrigerated for a few days without damage to the seeds." [suggests a persistent propagule bank will not form]
802	2003. O'Reilly, R.. Propagation protocol for production of container <i>Inga laurina</i> (Sw.) Willd. Plants. University of Idaho, College of Natural Resources, Forest Research Nursery, http://www.nativeplantnetwork.org	"The seeds were removed from the fruits, rinsed with water and planted immediately. Seeds cannot be stored."
803	1968. Dowler, C.C./Forestier, W./Tschirley, F.H.. Effect and Persistence of Herbicides Applied to Soil in Puerto Rican Forests. <i>Weed Science</i> . 16(1): 45-50.	"Abstract. Six herbicides were applied at 3, 9, and 27 lb/A to the soil in forests of three types in Puerto Rico...The 27 lb/A rate of dicamba caused 100% defoliation of <i>Psychotria berteriana</i> DC. and <i>Inga fagifolia</i> (L.) Willd...When all the treatments at all locations are considered, <i>Tabebuia heterophylla</i> (DC.) Britton, <i>Cordia borinquensis</i> Urban, <i>Inga fagifolia</i> (L.) Willd., and <i>Ocotea leucoxydon</i> (Sw.) Mez were most resistant and <i>Psychotria berteriana</i> DC., <i>Miconia sintenisii</i> Cogn., <i>Senegalia westiana</i> (DC.) Britton & Rose, and <i>Leucaena leucocephala</i> (Lam.) DeWit were most susceptible." [well controlled by dicamba, but not by other herbicides]
804	1994. Francis, J.K.. <i>Inga fagifolia</i> (L.) Willd. Guamá. Leguminosae. (Mimosoideae). Legume family. SO-ITF-SM-72. USDA Forest Service, International Institute of Tropical Forestry,	"Vegetative Reproduction. - Small guama trees will coppice, but large trees will not (20)."
805	2010. WRA Specialist. Personal Communication.	Unknown