

**Family:** *Euphorbiaceae*

**Taxon:** *Hura crepitans*

**Synonym:** *Hura brasiliensis* Willd.  
*Hura senegalensis* Baill.  
*Hura strepens* Willd.

**Common Name** Sandbox tree  
ceiba amarilla  
javello  
catahua  
Possumwood  
Monkey no-climb

**Questionnaire :** current 20090513      **Assessor:** Chuck Chimera      **Designation:** H(HPWRA)  
**Status:** Assessor Approved      **Data Entry Person:** Chuck Chimera      **WRA Score** 8

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)	y
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)	
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	n
401	Produces spines, thorns or burrs	y=1, n=0	y
402	Allelopathic	y=1, n=0	n
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	y
405	Toxic to animals	y=1, n=0	y
406	Host for recognized pests and pathogens	y=1, n=0	
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	y
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	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>3
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	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	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	
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	
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: H(HPWRA)

WRA Score 8

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**Supporting Data:**

101	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"Costa Rica, the West Indies, Panama to tropical South America."
202	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"Costa Rica, the West Indies, Panama to tropical South America."
203	2011. Dave's Garden. PlantFiles: Possum Wood, Sandbox Tree. <a href="http://davesgarden.com/guides/pf/go/59554/">http://davesgarden.com/guides/pf/go/59554/</a>	"Hardiness: USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)"
204	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"Costa Rica, the West Indies, Panama to tropical South America."
205	2001. Hanelt, P. (ed.). Mansfeld's encyclopedia of agricultural and horticultural crops: (except ornamentals).. Angiospermae - monocotyledones: orchidaceae - pandanaceae, Volume 5. Springer-Verlag, Berlin, Heidelberg, New York	"Widely cultivated in tropical regions of America, Africa and Asia."
301	1993. Binggeli, P./Hamilton, A.C.. Biological invasion by <i>Maesopsis eminii</i> in the Eastern Usambara forests, Tanzania. Opera Botanica. 121: 229–35.	"Tab. 2. Some invasive plant species in the East Usambara forest. (Source Hamilton & Bensted-Smith 1989)." [includes <i>Hura crepitans</i> naturalized in East Africa]
301	1998. Csurhes, S./Edwards, R.. Potential environmental weeds in Australia: Candidate species for preventative control. Biodiversity Group, Environment Australia, Canberra, Australia	"Planted in a CSIRO forestry plot at Middle Point, 50km east of Darwin in the mid to late 1960's, it has established populations in surrounding native bushland. At least three other trial plots are believed to exist in the Northern Territory."
301	2008. Dawson, W./Mndolwa, A.S./Burslem, D.F.R.P./Hulme, P.E.. Assessing the risks of plant invasions arising from collections in tropical botanical gardens. Biodiversity and Conservation. 17: 979–1995.	"Table 4 Naturalising species with known planting history in ABG" [list includes <i>Hura crepitans</i> in East Africa]
302	1998. Csurhes, S./Edwards, R.. Potential environmental weeds in Australia: Candidate species for preventative control. Biodiversity Group, Environment Australia, Canberra, Australia	"Planted in a CSIRO forestry plot at Middle Point, 50km east of Darwin in the mid to late 1960's, it has established populations in surrounding native bushland. At least three other trial plots are believed to exist in the Northern Territory." [naturalized, but impacts unknown]
302	2006. Darwin Initiative Project. Usambara Invasive Plants - <i>Hura crepitans</i> . <a href="http://www.tropical-biology.org/research/dip/species/Hura%20crepitans.htm">http://www.tropical-biology.org/research/dip/species/Hura%20crepitans.htm</a>	"Introduced range: Invasive in Australia and Tanzania. Introduced but not invasive in West Africa...Ecosystem: Its large seeds can germinate and grow in deep shade, allowing the plant to invade undisturbed forest." [introduced, and spreading, but impacts unknown]
302	2011. WRA Specialist. Personal Communication.	<i>Hura crepitans</i> is a potential environmental weed, but there is insufficient evidence of impacts at this point a yes answer to question 3.04. Although not regarded as a disturbance weed, there is sufficient evidence to support its designation as a weed of minor significance, and to answer yes to 3.02.
303	2007. Randall, R.P.. Global Compendium of Weeds - <i>Hura crepitans</i> [Online Database]. <a href="http://www.hear.org/gcw/species/hura_crepitans/">http://www.hear.org/gcw/species/hura_crepitans/</a>	Listed as an agricultural weed, but no evidence of impacts found in the literature.

304	2006. WWF Australia. National list of naturalised invasive and potentially invasive garden plants. <a href="http://wwf.org.au/publications/ListInvasivePlants/">http://wwf.org.au/publications/ListInvasivePlants/</a>	"Hura crepitans...Enviro Score = X ... Australian Rating = 2" [X = Environmental weed; Australian Rating, 2 = Naturalised and known to be a minor problem warranting control at 3 or fewer locations within a State or Territory. Although classified as an environmental weed, insufficient information to answer yes to question 3.04. Sufficient info. To answer yes to 3.02]
305	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"The other species, H. polyandra Baillon, is easily distinguished by the several verticels of anthers in its male flowers." [only one other Hura species]
305	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. <a href="http://www.hear.org/gcw/">http://www.hear.org/gcw/</a>	Hura polyandra not listed as a weed or invasive
401	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"Trees, trunk with hard conical spines"
402	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	No evidence
403	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"Trees, trunk with hard conical spines" [not parasitic]
404	2009. Kirk, T.K.. Tropical Trees of Florida and the Virgin Islands: A Guide to Identification, Characteristics and Uses. Pineapple Press Inc., Sarasota, FL	"The seeds as well as the latex are toxic, and have been used to poison fish and other animals." [presumably unpalatable to grazing animals]
405	2009. Kirk, T.K.. Tropical Trees of Florida and the Virgin Islands: A Guide to Identification, Characteristics and Uses. Pineapple Press Inc., Sarasota, FL	"The seeds as well as the latex are toxic, and have been used to poison fish and other animals."
406	2011. WRA Specialist. Personal Communication.	Unknown
407	1997. Nellis, D.W.. Poisonous plants and animals of Florida and the Caribbean. Pineapple Press Inc., Sarasota, FL	"The translucent yellow sap is caustic and poisonous containing the toxic proteins hurin and crepitin which are lymphatic mitogens...The sap causes immediate inflammation and later eruptions on the skin and painful irritation to the eyes, sometimes so severe as to induce temporary blindness. Dust from working the wood or smoke from its burning irritates the eyes and respiratory tract. Consumption of half a pleasant tasting seed can rapidly produce debilitation intestinal cramps, diarrhea, and vomiting followed by rapid heartbeat and impaired vision. It is reported that the digestive disturbances may be delayed a day or more after consumption of a seed. In large doses, comprised of two or more seeds, delirium, convulsions, and death may ensue. Segments of the woody fruit used in jewelry handicrafts have caused dermatitis."
407	2009. Kirk, T.K.. Tropical Trees of Florida and the Virgin Islands: A Guide to Identification, Characteristics and Uses. Pineapple Press Inc., Sarasota, FL	"its sap is caustic and very toxic"
408	2002. Fredericksen, N.J./Fredericksen, T.S.. Terrestrial wildlife responses to logging and fire in a Bolivian tropical humid forest. Biodiversity and Conservation. 11: 27-38.	No evidence
409	2003. Pariona, W./Fredericksen, T.S./Licona, J.C.. Natural regeneration and liberation of timber species in logging gaps in two Bolivian tropical forests. Forest Ecology and Management. 181: 313-322.	"Centrolobium pluviosa and H. crepitans are more tolerant of shade and their seedlings appear to survive in many different microsites (Fredericksen et al., 2001; Justiniano and Fredericksen, 2000), although the tallest saplings of these species also appeared in bole-maneuvering zones rather than in unscarified areas of the gaps (Fredericksen and Pariona, 2002)."
409	2009. Kirk, T.K.. Tropical Trees of Florida and the Virgin Islands: A Guide to Identification, Characteristics and Uses. Pineapple Press Inc., Sarasota, FL	"It prefers full sun but can tolerate some shade."
410	1998. Riffle, R.L.. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	"Average well-drained soil"

410	2006. Darwin Initiative Project. Usambara Invasive Plants - <i>Hura crepitans</i> . <a href="http://www.tropical-biology.org/research/dip/species/Hura%20crepitans.htm">http://www.tropical-biology.org/research/dip/species/Hura%20crepitans.htm</a>	"Soil pH between 5 and 8. Moist, sandy or clay soils."
411	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"Trees to 25 m, but often kept much lower when used as living fence posts." [not climbing or smothering]
412	2005. Park, A./Justiniano, M.J./Fredericksen, T.S.. Natural regeneration and environmental relationships of tree species in logging gaps in a Bolivian tropical forest. Forest Ecology and Management. 217: 147-157.	"Among the more valuable commercial species, only <i>H. crepitans</i> was present at 3.7 stems ha <sup>-1</sup> (Fredericksen et al., 2000)." [does not form dense thickets in native range]
501	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	Terrestrial tree
502	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"Trees to 25 m" [Euphorbiaceae]
503	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	Euphorbiaceae [not a nitrogen fixing woody plant]
504	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"Trees to 25 m" [not a geophyte]
601	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	No evidence of substantial reproductive failure in native habitat
601	1999. Mostacedo C., B./Fredericksen, T.S.. Regeneration status of important tropical forest tree species in Bolivia: assessment and recommendations. Forest Ecology and Management. 124: 263-273.	" <i>Hura crepitans</i> does not appear to be very demanding with respect to site conditions for regeneration, germinating and growing rapidly on both, highly disturbed and essentially undisturbed sites (personal observation by the authors)." [no evidence of substantial reproductive failure in native habitat]
602	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"seeds smooth, flattened, suborbicular, to 2 cm diam."
603	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. Flora of Panama. Part VI. Family 97. Euphorbiaceae. Annals of the Missouri Botanical Garden. 54(3): 211-350.	"The other species, <i>H. polyandra</i> Baillon, is easily distinguished by the several verticels of anthers in its male flowers." [unknown if species are able to hybridize]
604	1992. Steiner, K.E.. Mistake pollination of <i>Hura crepitans</i> (Euphorbiaceae) by frugivorous bats. PhD Dissertation. University of California, Davis, CA	monoecious [but self-compatibility unknown]
605	1992. Steiner, K.E.. Mistake pollination of <i>Hura crepitans</i> (Euphorbiaceae) by frugivorous bats. PhD Dissertation. University of California, Davis, CA	" <i>Hura crepitans</i> ...Pollinator: Flower-eating bats"
605	1995. Bush, M.B.. Neotropical Plant Reproductive Strategies and Fossil Pollen Representation. The American Naturalist. 145(4): 594-609.	"Table A1. <i>Hura</i> ...Pollinator...s.g.i., small generalist insect" [in contrast to Steiner 1992]
606	1998. Riffle, R.L.. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	"Propagation by seed and cuttings" [no evidence of vegetative spread]

607	2007. Scherer-Lorenzen, M./Bonilla, J.L./Potvin, C.. Tree species richness affects litter production and decomposition rates in a tropical biodiversity experiment. <i>Oikos</i> . 116: 2108-124.	"At the time of data collection for this study after four years of growth, trees had a mean height of 284 cm, with single individuals reaching up to 10 m in height, and <i>Hura crepitans</i> and <i>Luehea seemanii</i> were reproductive."
701	2009. Kirk, T.K.. <i>Tropical Trees of Florida and the Virgin Islands: A Guide to Identification, Characteristics and Uses</i> . Pineapple Press Inc., Sarasota, FL	"When dry the woody capsule splits open violently with a loud crack, scattering the seeds up to 200 ft. (61 m)." [Seeds may be unintentionally dispersed away from planting sites due to explosively dehiscent capsules]
702	1964. Little, Jr. E.L./Wadsworth, F.H.. <i>Common trees of Puerto Rico and the Virgin Islands</i> . Agriculture Handbook No. 249. U.S.D.A. Forest Service, Washington, D.C	"In some tropical areas, including southern Florida, the trees are planted for shade. However, the poisonous sap makes the trees objectionable around houses."
702	2009. Kirk, T.K.. <i>Tropical Trees of Florida and the Virgin Islands: A Guide to Identification, Characteristics and Uses</i> . Pineapple Press Inc., Sarasota, FL	"Sandbox tree is a pretty tree, and is planted in parks and along fences and roads." [ornamental]
703	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. <i>Flora of Panama</i> . Part VI. Family 97. Euphorbiaceae. <i>Annals of the Missouri Botanical Garden</i> . 54(3): 211-350.	"Capsule woody, oblate, to ca 8 cm diam, 3 5 cm long, dehiscent explosively into ca 15 crescentic cocci; seeds smooth, flattened, suborbicular, to 2 cm diam." [no evidence of produce contamination, & fairly large seeds unlikely to contaminate produce]
704	1977. Swaine, M.D./Beer, T.. Explosive seed dispersal in <i>Hura crepitans</i> L. (Euphorbiaceae). <i>New Phytologist</i> . 78: 695-708.	" <i>Hura crepitans</i> is a forest tree of the upper canopy, but despite an opportunity to exploit dispersal by wind, has evolved a mechanism which permits the limited dispersal of relatively large seeds. We may suppose that large seeds are of some importance both for the penetration of the forest canopy, and for successful establishment in deep shade." [not dispersed by wind]
705	2006. Sullivan, C.J./Flynn, T./Sullivan, G.. <i>Stranded Fruits, Seeds And Other Drift On Kauai Beaches</i> . <i>The Drifting Seed</i> . 12(2): 7-9.	"The following list the stranded fruits, seeds and other drift collected on Kauai beaches:...Sandbox tree, <i>Hura crepitans</i> "
705	2010. Condit, R./Pérez, R./Daguerra, N.. <i>Trees of Panama and Costa Rica</i> . Princeton University Press, Princeton, NJ	"Often along rivers in agricultural areas"
706	1977. Swaine, M.D./Beer, T.. Explosive seed dispersal in <i>Hura crepitans</i> L. (Euphorbiaceae). <i>New Phytologist</i> . 78: 695-708.	"The limited dispersal achieved by explosive mechanisms is, however, more dependable than animal or even wind dispersal which may partially account for its occurrence in a wide variety of taxonomic groups; it is also more effective in reducing parent-offspring competition than that dispersal which seems to rely entirely on gravity." [not fleshy fruited]
706	2006. Vaughan, C./Nemeth, N./Marineros, L.. Scarlet Macaw, <i>Ara macao</i> , (Psittaciformes: Psittacidae) diet in Central Pacific Costa Rica. <i>Revista de Biología Tropical</i> 54(3): 919-926. 54(3): 919-926.	"Fruits and/or seeds of <i>A. excelsum</i> , <i>C. pentandra</i> , and <i>H. crepitans</i> were eaten relatively often during the dry season...Scarlet Macaws eating fruits, seeds, and bark of <i>H. crepitans</i> throughout most of the year in Central Pacific Costa Rica," [apparently acting as seed predators rather than dispersers]
707	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. <i>Flora of Panama</i> . Part VI. Family 97. Euphorbiaceae. <i>Annals of the Missouri Botanical Garden</i> . 54(3): 211-350.	"seeds smooth, flattened, suborbicular, to 2 cm diam." [no evidence of external dispersal by animals, and no means of external attachment]
708	2011. WRA Specialist. Personal Communication.	Unknown, but seeds unlikely to be consumed by animals
801	1967. Woodson, Jr., R.E./Schery, R.W./Webster, G.L./Burch, D.. <i>Flora of Panama</i> . Part VI. Family 97. Euphorbiaceae. <i>Annals of the Missouri Botanical Garden</i> . 54(3): 211-350.	"Trees to 25 m...Capsule woody, oblate, to ca 8 cm diam, 3-5 cm long, dehiscent explosively into ca 15 crescentic cocci; seeds smooth, flattened, suborbicular, to 2 cm diam." [although trees can reach a fairly large size, dehiscent capsules and large seeds make seed productions in excess of 1000 m2 unlikely]
802	2006. Sautu, A./Baskin, J.M./Baskin, C.C./Condit, R.. Studies on the seed biology of 100 native species of trees in a seasonal moist tropical forest, Panama, Central America. <i>Forest Ecology and Management</i> . 234: 245-263.	"Ninety species were evaluated for seed longevity. Seeds were stored in paper bags at 20 8C and 60% relative humidity. Storage conditions were chosen considering the best conditions in many local field projects, where cold rooms are not available. Since many seeds had high moisture content, paper bags were preferred to plastic ones to avoid fungal growth...Table 1: Results of germination and other studies of seeds of 100 species native to the Panama Canal watershed... <i>Hura crepitans</i> ...Longevity (months): +15" [seeds able to be stored for 15 months in lab conditions, but see Sautu et al. 2007]
802	2007. Sautu, A./Baskin, J.M./Baskin, C.C./Deago, J./Condit, R.. Classification and ecological relationships of seed dormancy in a seasonal moist tropical forest, Panama, Central America. <i>Seed Science Research</i> . 17: 127-140.	"Table 1. Class of seed dormancy for 94 species native to the Panama Canal Watershed and basis of assignment of each species to that class. ND, non-dormant;" [ <i>Hura crepitans</i> classified as non-dormant]

802	2011. Tropilab Inc.. Hura crepitans L. - Sandbox Tree. <a href="http://www.tropilab.com/hura-cre.html">http://www.tropilab.com/hura-cre.html</a>	"Due to recalcitrant nature of the seeds, they have a short viable life, can not be dried well and can not withstand low temperatures."
803	2006. Darwin Initiative Project. Usambara Invasive Plants - Hura crepitans. <a href="http://www.tropical-biology.org/research/dip/species/Hura%20crepitans.htm">http://www.tropical-biology.org/research/dip/species/Hura%20crepitans.htm</a>	"Chemical: No information available."
804	1999. Pinard, M.A./Putz, F.E./Licona, J.C.. Tree mortality and vine proliferation following a wildfire in a subhumid tropical forest in eastern Bolivia. <i>Forest Ecology and Management</i> . 116: 247-252.	"Hura crepitans, the second most important species in this forest in terms of current commercial value, suffered relatively high mortality with three of nine stems killed by the fire; half of the Hura stems that were not killed by the fire suffered basal cambial damage." [apparently intolerant of fire]
804	2003. Parionaa, W./Fredericksen, T.S./Licona, J.C.. Natural regeneration and liberation of timber species in logging gaps in two Bolivian tropical forests. <i>Forest Ecology and Management</i> . 181: 313–322.	"Advanced regeneration in logging gaps in the two forest types was similar in that both sites had one species (C. microchaete in the dry forest and H. crepitans in the humid forest) that represented the vast majority of saplings of commercial species. A substantial portion of this regeneration originated from re-sprouts, particularly in the dry forest...In contrast, H. crepitans tends to have a more even distribution among individuals from seed origin, stem sprouts, and root sprouts (Justiniano and Fredericksen, 2000)." [able to resprout after cutting]
805	2011. WRA Specialist. Personal Communication.	Unknown