

Taxon: <i>Heteropterys brachiata</i> (L.) DC.	Family: Malpighiaceae
Common Name(s): Beechey's witheredwing	Synonym(s): <i>Banisteria beecheyana</i> (A.Juss.) <i>Banisteria brachiata</i> L. <i>Banisteria retusa</i> (Donn.Sm.) C.B.Rob. <i>Banisteria sanguinea</i> Rusby <i>Banisteria simulans</i> Small <i>Heteropterys beecheyana</i> A.Juss. <i>Heteropterys beecheyana</i> var. <i>andina</i> ... <i>Heteropterys retusa</i> Donn.Sm. <i>Heteropterys simulans</i> (Small) Nied. <i>Malpighia rotundifolia</i> Sessé & Moc.

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 16 May 2016
WRA Score: 7.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Tropical Liana, Naturalizing, Ornamental, Shade-Tolerant, Wind-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	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	?
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		
305	Congeneric weed		
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		

Qsn #	Question	Answer Option	Answer
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		
409	Is a shade tolerant plant at some stage of its life cycle		
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	y
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		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation		
607	Minimum generative time (years)		
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		
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed		
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	n
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		

Qsn #	Question	Answer Option	Answer
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
	Anderson, W. R., Anderson, C. & Davis, C. C. 2006-. Malpighiaceae. http://herbarium.lsa.umich.edu/malpigh/index.html . [Accessed 13 May 2016]	No evidence of domestication in genus

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2016. 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
	Tropicos.org. 2016. Tropicos [Online Database]. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 13 May 2016]	Native to or collected from Belize, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru & Venezuela

202	Quality of climate match data	High
	Source(s)	Notes
	Tropicos.org. 2016. Tropicos [Online Database]. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 13 May 2016]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Tropicos.org. 2016. Tropicos [Online Database]. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 13 May 2016]	Collected from 0 m - 3350 m & from 07°47'00"N to 23°14'00"N [Elevation range exceeds 1000 m, demonstrating environmental versatility]

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Anderson, W. R. (2013). Origins of Mexican Malpighiaceae. <i>Acta Botanica Mexicana</i> , 104: 107-156	" <i>Heteropterys brachiata</i> occurs from westernmost South America throughout Central America and is common across central and southern Mexico, where it grows in diverse dry and mesic habitats"

Qsn #	Question	Answer
	Florida Exotic Pest Plant Council. (2015). FLEPPC 2015 List of Invasive Plant Species. http://www.fleppc.org/ . [Accessed 13 May 2016]	"Heteropterys brachiata or "redwing" is a liana (woody vine) in the Malpighiaceae family. It is native to Mexico, Central America and South America."
	Tropicos.org. 2016. Tropicos [Online Database]. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 13 May 2016]	Native to or collected from Belize, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru & Venezuela

205	Does the species have a history of repeated introductions outside its natural range?	?
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Grown as an ornamental, but unclear how widely it has been cultivated

301	Naturalized beyond native range	y
	Source(s)	Notes
	Florida Exotic Pest Plant Council. (2015). FLEPPC 2015 List of Invasive Plant Species. http://www.fleppc.org/ . [Accessed 13 May 2016]	"Heteropterys brachiata or "redwing" is a liana (woody vine) in the Malpighiaceae family. It is native to Mexico, Central America and South America. Redwing seedlings dominate the understory of hardwood hammocks, and older plants twine up into the canopy where their flowers and fruits are present, but out of reach, in winter months."
	Parker, J. 2016. BIISC Early Detection Botanist. Pers. Comm. 10 May	"Heteropterys glabra and brachiata (we found one of these naturalizing, probably glabra, still waiting on BISH)"

302	Garden/amenity/disturbance weed	y
	Source(s)	Notes
	Florida Exotic Pest Plant Council. (2015). FLEPPC 2015 List of Invasive Plant Species. http://www.fleppc.org/ . [Accessed 13 May 2016]	[A Category II weed with potential environmental effects if uncontrolled] "Heteropterys brachiata or "redwing" is a liana (woody vine) in the Malpighiaceae family. It is native to Mexico, Central America and South America. Redwing seedlings dominate the understory of hardwood hammocks, and older plants twine up into the canopy where their flowers and fruits are present, but out of reach, in winter months."
	Possley, J., J. Maschinski, S. Hodges, E. Magnaghi, D. Powell, K. Weclawska, S. Wright & V. Pence. 2013. Year 11 report: Biological monitoring for plant conservation in Miami-Dade County natural areas. Miami-Dade County Resolution #R-808 07. Report from Fairchild Tropical Botanic Garden, Miami, FL	[Targeted for control] "We continued to identify new and unusual plant invasions that threaten rare native plant populations. We alerted preserve managers to their presence, and in many cases participated in removal efforts. Taxa we focused on included, <i>Heteropterys brachiata</i> , <i>Lumnitzera racemosa</i> , <i>Phymatosorus</i> spp., <i>Nephrolepis</i> spp., and <i>Mikania micrantha</i> ."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

Qsn #	Question	Answer
304	Environmental weed	
	Source(s)	Notes
	Florida Exotic Pest Plant Council. (2015). FLEPPC 2015 List of Invasive Plant Species. http://www.fleppc.org/ . [Accessed 13 May 2016]	[Potentially] <i>Heteropterys brachiata</i> designated a Category II weed [Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. These species may become ranked Category I if ecological damage is demonstrated.]
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

305	Congeneric weed	
	Source(s)	Notes
	Office of Everglades Restoration. (2014). Integrated Financial Plan. U.S. Department of the Interior, Davie, FL. http://www.evergladesrestoration.gov/ . [Accessed]	[<i>Heteropterys glabra</i> included as a rapid response species] "ECISMA will continue to coordinate, assess and respond to new invasive species, using the ECISMA EDRR plan as a framework. Invasive species assessed will have been reported to ECISMA via EDDMapS or 1-888-Ive Got 1. The invasive species that are currently considered priority rapid response candidates: <i>Bruguiera gymnorrhiza</i> , <i>Chrysopogon aciculatus</i> , <i>Dalchampia scandens</i> , <i>Heteropterys glabra</i> <i>Petenia splendida</i> "

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Anderson, W. R., Anderson, C. & Davis, C. C. 2006-. Malpighiaceae. http://herbarium.lsa.umich.edu/malpigh/index.html . [Accessed 13 May 2016]	[No evidence. Generic description] "Woody vines, shrubs, or small trees; stipules very small, distinct, triangular, persistent, borne on edge of petiole at its base or on stem beside petiole, or absent; leaves opposite or very rarely alternate or whorled, usually bearing glands on petiole or lamina or both."

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

403	Parasitic	n
	Source(s)	Notes
	Anderson, W. R. (2013). Origins of Mexican Malpighiaceae. <i>Acta Botanica Mexicana</i> , 104: 107-156	"Woody vines, shrubs, or small trees" [Generic description. Malpighiaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

Qsn #	Question	Answer
405	Toxic to animals	n
	Source(s)	Notes
	Huerta-Reyes, M., Juárez R. M. F., & Aguilar-Rojas, A. (2015). <i>Heteropterys</i> Genus: A Review of its Phytochemistry and Pharmacology. <i>International Journal of Pharmacology</i> 11(6): 523-531	" <i>Heteropterys brachiata</i> ... In the acute toxicity test, the extract could be considered as safe, since no deaths were observed in mice treated orally with 2000 mg kg ⁻¹ ."
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	No evidence
406	Host for recognized pests and pathogens	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown
407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Huerta-Reyes, M., Juárez R. M. F., & Aguilar-Rojas, A. (2015). <i>Heteropterys</i> Genus: A Review of its Phytochemistry and Pharmacology. <i>International Journal of Pharmacology</i> 11(6): 523-531	" <i>Heteropterys brachiata</i> ... In the acute toxicity test, the extract could be considered as safe, since no deaths were observed in mice treated orally with 2000 mg kg ⁻¹ ."
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	No evidence
408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Anderson, W. R. (2013). <i>Origins of Mexican Malpighiaceae</i> . <i>Acta Botanica Mexicana</i> , 104: 107-156	[Unknown. Dry habitats may be fire prone ecosystems] " <i>Heteropterys brachiata</i> occurs from westernmost South America throughout Central America and is common across central and southern Mexico, where it grows in diverse dry and mesic habitats;"
	WRA Specialist. 2016. Personal Communication	Unknown. As a liana, could act as a fuel ladder into trees
409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	JC Raulston Arboretum at NC State University. 2016. <i>Heteropterys glabra</i> . https://jcra.ncsu.edu/horticulture/plant-profiles/details.php?ID=3 . [Accessed 13 May 2016]	[Related species is shade tolerant] "Planting <i>Heteropterys</i> in a sunny spot ensures the best flower and fruit show but it will grow well in a shadier location. It may need some training to grow up a structure when young or it can be planted under a low branched tree."
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y

Qsn #	Question	Answer
	Source(s)	Notes
	Johnson Nursery. (2016). Red Wing. http://www.johnson-nursery.com/plant-nursery/plant/redwing/id/2140404 . [Accessed 13 May 2016]	"Tolerates a wide variety of soils."

411	Climbing or smothering growth habit	y
	Source(s)	Notes
	Anderson, W. R. (2013). Origins of Mexican Malpighiaceae. <i>Acta Botanica Mexicana</i> , 104: 107-156	" <i>H. brachiata</i> (L.) DC., <i>H. cotinifolia</i> A. Juss., <i>H. palmeri</i> Rose, and <i>H. panamensis</i> Cuatrec. & Croat ... All four species are woody vines (occasionally shrubby) wind-dispersed by winged samaras."

412	Forms dense thickets	n
	Source(s)	Notes
	Anderson, W. R. (2013). Origins of Mexican Malpighiaceae. <i>Acta Botanica Mexicana</i> , 104: 107-156	"Woody vines, shrubs, or small trees" [Generic description. Climbing habit]

501	Aquatic	n
	Source(s)	Notes
	Anderson, W. R., Anderson, C. & Davis, C. C. 2006-. Malpighiaceae. http://herbarium.lsa.umich.edu/malpigh/index.html . [Accessed]	[Terrestrial] "Woody vines, shrubs, or small trees"

502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 13 May 2016]	"Family: Malpighiaceae"

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 16 May 2016]	"Family: Malpighiaceae"

Qsn #	Question	Answer
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Anderson, W. R., Anderson, C. & Davis, C. C. 2006-. Malpighiaceae. http://herbarium.lsa.umich.edu/malpigh/index.html . [Accessed 16 May 2016]	"Woody vines, shrubs, or small trees; stipules very small, distinct, triangular, persistent, borne on edge of petiole at its base or on stem beside petiole, or absent; leaves opposite or very rarely alternate or whorled, usually bearing glands on petiole or lamina or both."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Anderson, W. R. (1993). Notes on Neotropical Malpighiaceae-IV. Contributions from the University of Michigan Herbarium, 19: 355-392	"Heteropterys brachiata ... This species is extremely common, and correspondingly variable, throughout Mexico and south into South America."
	Tropicos.org. 2016. Tropicos [Online Database]. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 16 May 2016]	No evidence. Widespread distribution

602	Produces viable seed	y
	Source(s)	Notes
	Florida Exotic Pest Plant Council. (2015). FLEPPC 2015 List of Invasive Plant Species. http://www.fleppc.org/ . [Accessed 13 May 2016]	"Redwing seedlings dominate the understory of hardwood hammocks, and older plants twine up into the canopy where their flowers and fruits are present, but out of reach, in winter months. The fruits of redwing are deep red, wind-dispersed samaras; hence the name "redwing.""

603	Hybridizes naturally	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

604	Self-compatible or apomictic	
	Source(s)	Notes
	Sigrist, M. R., & Sazima, M. (2004). Pollination and reproductive biology of twelve species of neotropical Malpighiaceae: stigma morphology and its implications for the breeding system. <i>Annals of Botany</i> , 94(1), 33-41	[Unknown for <i>H. brachiata</i>] "In neotropical Malpighiaceae, self-incompatibility has been reported for <i>Byrsonima coccolobifolia</i> (Barros, 1992), <i>B. sericea</i> (Teixeira and Machado, 2000), <i>Camarea af[®]nis</i> , <i>Heteropterys</i> sp. (A. A. A. Barbosa, pers. comm.) and <i>Spachea membranacea</i> (Steiner, 1985), but the category of incompatibility has not been determined yet (cf. Seavey and Bawa, 1986)."

605	Requires specialist pollinators	n
	Source(s)	Notes

Qsn #	Question	Answer
	Anderson, W. R. (1979). Floral conservatism in Neotropical Malpighiaceae. <i>Biotropica</i> , 11(3): 219-223	"Gates (1977) reported large anthophorid bees taking oil and small trigonid bees collecting pollen in four species of <i>Banisteriopsis</i> . I have observed the same two groups of bees on diverse species of <i>Banisteriopsis</i> (including <i>Centris collaris</i> Lepeletier on " <i>Banisteria</i> " <i>oxyclada</i> Jussieu), <i>Byrsonima</i> , <i>Heteropterys</i> , and <i>Schwannia</i> ; in addition, vespids seem to collect pollen from the flowers of <i>Lasiocarpus</i> and occasionally <i>Banisteriopsis</i> ."
	Flora Nativa. (2016). <i>Heteropterys glabra</i> . http://www.revistabiomas.com/dos/flora.html . [Accessed 16 May 2016]	[Related taxon insect-pollinated] "It blooms from spring to autumn and pollination occurs by insects (insect pollination)"

606	Reproduction by vegetative fragmentation	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

607	Minimum generative time (years)	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Anderson, W. R., Anderson, C. & Davis, C. C. 2006--. Malpighiaceae. http://herbarium.lsa.umich.edu/malpigh/index.html . [Accessed 16 May 2016]	[Adapted for wind dispersal] "Fruit dry, breaking apart into 3 samaras or mericarps separating from a short pyramidal torus; samara with its largest wing dorsal, thickened on the abaxial (lower) edge and (in most species) bent upward, the veins terminating in the thinner adaxial edge; much shorter winglets or crests present on the sides of the nut in some species; dorsal wing rudimentary or lost in a few species; carpophore absent."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Parker, J. 2016. BIISC Early Detection Botanist. Pers. Comm. 10 May	Cultivated on Hawaii island

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes

Qsn #	Question	Answer
	Anderson, W. R. (2013). Origins of Mexican Malpighiaceae. <i>Acta Botanica Mexicana</i> , 104: 107-156	" <i>H. brachiata</i> (L.) DC., <i>H. cotinifolia</i> A. Juss., <i>H. palmeri</i> Rose, and <i>H. panamensis</i> Cuatrec. & Croat ... All four species are woody vines (occasionally shrubby) wind-dispersed by winged samaras."
	Florida Exotic Pest Plant Council. (2015). FLEPPC 2015 List of Invasive Plant Species. http://www.fleppc.org/ . [Accessed 13 May 2016]	"Redwing seedlings dominate the understory of hardwood hammocks, and older plants twine up into the canopy where their flowers and fruits are present, but out of reach, in winter months. The fruits of redwing are deep red, wind-dispersed samaras; hence the name "redwing.""

705	Propagules water dispersed	
	Source(s)	Notes
	Anderson, W. R., Anderson, C. & Davis, C. C. 2006-. Malpighiaceae. http://herbarium.lsa.umich.edu/malpigh/index.html . [Accessed 16 May 2016]	[Adapted for wind dispersal. Buoyancy of samaras unknown] "Fruit dry, breaking apart into 3 samaras or mericarps separating from a short pyramidal torus; samara with its largest wing dorsal, thickened on the abaxial (lower) edge and (in most species) bent upward, the veins terminating in the thinner adaxial edge; much shorter winglets or crests present on the sides of the nut in some species; dorsal wing rudimentary or lost in a few species; carpophore absent."

706	Propagules bird dispersed	n
	Source(s)	Notes
	Florida Exotic Pest Plant Council. (2015). FLEPPC 2015 List of Invasive Plant Species. http://www.fleppc.org/ . [Accessed 16 May 2016]	"The fruits of redwing are deep red, wind-dispersed samaras; hence the name "redwing.""

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Anderson, W. R., Anderson, C. & Davis, C. C. 2006-. Malpighiaceae. http://herbarium.lsa.umich.edu/malpigh/index.html . [Accessed 16 May 2016]	[No means of external attachment] "Fruit dry, breaking apart into 3 samaras or mericarps separating from a short pyramidal torus; samara with its largest wing dorsal, thickened on the abaxial (lower) edge and (in most species) bent upward, the veins terminating in the thinner adaxial edge; much shorter winglets or crests present on the sides of the nut in some species; dorsal wing rudimentary or lost in a few species; carpophore absent."

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Anderson, W. R., Anderson, C. & Davis, C. C. 2006-. Malpighiaceae. http://herbarium.lsa.umich.edu/malpigh/index.html . [Accessed 16 May 2016]	[Seeds unlikely to be consumed] "Fruit dry, breaking apart into 3 samaras or mericarps separating from a short pyramidal torus; samara with its largest wing dorsal, thickened on the abaxial (lower) edge and (in most species) bent upward, the veins terminating in the thinner adaxial edge; much shorter winglets or crests present on the sides of the nut in some species; dorsal wing rudimentary or lost in a few species; carpophore absent."

801	Prolific seed production (>1000/m2)	

Qsn #	Question	Answer
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. (2016) Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ . [Accessed 13 May 2016]	"Storage Behaviour: No data available for species or genus. Of 8 known taxa of family MALPIGHIACEAE, 87.50% Orthodox(p/?), 12.50% Recalcitrant(?)"

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	NA

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	NA

Summary of Risk Traits:

High Risk / Undesirable Traits

- Grows in tropical climates
- Naturalizing on Hawaii Island, & Florida (confirmation needed)
- Targeted for control in Florida
- Other *Heteropterys* species are regarded as weeds
- Shade tolerant
- Tolerates many soil types
- Climbing & smothering growth habit
- Reproduces by seeds
- Seeds dispersed by wind & intentionally by people
- Limited ecological information reduces accuracy of risk prediction

Low Risk Traits

- Limited reports of invasiveness or naturalization, but limited evidence of widespread introduction outside native range
- Unarmed (no spines, thorns or burrs)
- Ornamental