

Family: *Arecaceae*

Taxon: *Heterospathe elata*

Synonym: *Heterospathe palauensis* Becc.

Common Name: sagisi Palm
palma brava

Questionnaire : current 20090513
Status: Assessor Approved

Assessor: Chuck Chimera
Data Entry Person: Chuck Chimera

Designation: EVALUATE

WRA Score 5

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| 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 | ? |
| 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) | |
| 305 | Congeneric weed | n=0, y = 1*multiplier (see Appendix 2) | n |
| 401 | Produces spines, thorns or burrs | y=1, n=0 | n |
| 402 | Allelopathic | y=1, n=0 | |
| 403 | Parasitic | y=1, n=0 | n |
| 404 | Unpalatable to grazing animals | y=1, n=-1 | |
| 405 | Toxic to animals | y=1, n=0 | n |
| 406 | Host for recognized pests and pathogens | y=1, n=0 | n |
| 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 |

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| 412 | Forms dense thickets | y=1, n=0 | y |
| 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 | n |
| 702 | Propagules dispersed intentionally by people | y=1, n=-1 | y |
| 703 | Propagules likely to disperse as a produce contaminant | y=1, n=-1 | n |
| 704 | Propagules adapted to wind dispersal | y=1, n=-1 | n |
| 705 | Propagules water dispersed | y=1, n=-1 | |
| 706 | Propagules bird dispersed | y=1, n=-1 | y |
| 707 | Propagules dispersed by other animals (externally) | y=1, n=-1 | |
| 708 | Propagules survive passage through the gut | y=1, n=-1 | y |
| 801 | Prolific seed production (>1000/m2) | y=1, n=-1 | |
| 802 | Evidence that a persistent propagule bank is formed (>1 yr) | y=1, n=-1 | |
| 803 | Well controlled by herbicides | y=-1, n=1 | |
| 804 | Tolerates, or benefits from, mutilation, cultivation, or fire | y=1, n=-1 | |
| 805 | Effective natural enemies present locally (e.g. introduced biocontrol agents) | y=-1, n=1 | |

Designation: EVALUATE

WRA Score 5

Supporting Data:

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| 101 | 1990. Fernando, E.S.. The Genus <i>Heterospathe</i> (Palmae: Arecoideae) in the Philippines. Kew Bulletin. 45(2): 219-234. | [Is the species highly domesticated? No evidence] |
| 101 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Is the species highly domesticated? No evidence] |
| 102 | 2012. WRA Specialist. Personal Communication. | NA |
| 103 | 2012. WRA Specialist. Personal Communication. | NA |
| 201 | 1990. Fernando, E.S.. The Genus <i>Heterospathe</i> (Palmae: Arecoideae) in the Philippines. Kew Bulletin. 45(2): 219-234. | [Species suited to tropical or subtropical climate(s) 2-High] "H. elata is probably the species of <i>Heterospathe</i> most widely cultivated as an ornamental. In the Philippines it occurs in most parts of the archipelago, often growing in forests at low elevations. Although widespread it is now nowhere abundant except as a cultivated plant." |
| 202 | 1990. Fernando, E.S.. The Genus <i>Heterospathe</i> (Palmae: Arecoideae) in the Philippines. Kew Bulletin. 45(2): 219-234. | [Quality of climate match data 2-High] |
| 203 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Broad climate suitability (environmental versatility)? No] "The species does not tolerate frost and is adaptable only to zones 10b and 11." |
| 204 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Native or naturalized in regions with tropical or subtropical climates? Yes] " <i>Heterospathe elata</i> is widespread in the Philippines, Micronesia, and the Moluccas in rain forest at low elevations, where it can be an undergrowth subject for years before usually ending up as an emergent canopy tree." |
| 204 | 2012. Heatubun, C.D./Gardiner, L.M./Baker, W.J.. <i>Heterospathe elata</i> , a New Record for the New Guinea Islands. Palms. 56(2): 61-64. | [Native or naturalized in regions with tropical or subtropical climates? Yes] "Most species in the genus <i>Heterospathe</i> are endemic to single islands/ groups of islands, whereas <i>H. elata</i> is widely distributed, from the Philippines, to Maluku, the Caroline Islands (Palau) and the Marianas (Guam) (Fig 3)." |
| 205 | 2008. Meyer, J-Y./Lavergne, C./Hodel, D. R.. Time Bombs in Gardens: Invasive Ornamental Palms in Tropical Islands, with Emphasis on French Polynesia (Pacific Ocean) and the Mascarenes (Indian Ocean). Palms. 52: 71-83. | [Does the species have a history of repeated introductions outside its natural range? Tahiti] |
| 205 | 2012. Dave's Gardern. PlantFiles: Cubanola - PlantFiles: Sagisi Palm - <i>Heterospathe elata</i> [Accessed 16 Oct 2012]. http://davesgarden.com/guides/pf/go/67602/ | [Does the species have a history of repeated introductions outside its natural range? Florida] "This plant has been said to grow in the following regions: Boca Raton, Florida Loxahatchee, Florida" |
| 301 | 2008. Meyer, J-Y./Lavergne, C./Hodel, D. R.. Time Bombs in Gardens: Invasive Ornamental Palms in Tropical Islands, with Emphasis on French Polynesia (Pacific Ocean) and the Mascarenes (Indian Ocean). Palms. 52: 71-83. | [Naturalized beyond native range? Yes] "The Sagisi palm (<i>Heterospathe elata</i>), which was introduced to Guam between 1900 and 1920, is spreading in ravines and slopes (Jones 1995, Space & Falanruw 1999)." ... "At least nine other palm species are locally naturalized in the JBHS." ... " <i>Heterospathe elata</i> , from the western Pacific, with many seedlings and young plants growing in the shaded understory of a Tahitian chestnut (<i>Inocarpus fagifer</i>) secondary wet forest" |
| 302 | 2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia | [Garden/amenity/disturbance weed? No evidence] |
| 303 | 2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia | [Agricultural/forestry/horticultural weed? No evidence] |
| 304 | 2002. Svenning, J.C.. Non-native ornamental palms invade a secondary tropical forest in Panama. Palms. 46(2): 81-86. | [Environmental weed? Potentially impacting native vegetation in Guam, but some references list this species as native to Guam] "While little is known about the effects of invasive nonnative palm species on the natural tropical plant communities, some appear to be crowding out native plants (even other palms); e.g., <i>Heterospathe elata</i> on Guam (Jones 1995) and <i>Livistona chinensis</i> on Mauritius (Maunder et al. 2001)." |
| 304 | 2012. Heatubun, C.D./Gardiner, L.M./Baker, W.J.. <i>Heterospathe elata</i> , a New Record for the New Guinea Islands. Palms. 56(2): 61-64. | [Environmental weed? Potentially a native weed] "According to Fernando (1990), the species is nowhere abundant in the wild, although Moore and Fosberg (1956) reported that the species is considered to be a weed in Guam in several locations, even crowding out native species in ravines." ... "Two varieties of <i>H. elata</i> were described by Beccari, var. <i>guamensis</i> and var. <i>palauensis</i> . The former was considered to be a synonym of <i>H. elata</i> var. <i>elata</i> by Moore and Fosberg (1956) on the basis of there being little significant difference between the Guam material and material in cultivation, and their belief that the Guam material may have been introduced historically from the Philippines." |

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| 305 | 2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia | [Congeneric weed? No evidence] |
| 401 | 2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney. | [Produces spines, thorns or burrs? No] "It has a slender, single trunk and a crown of slightly arching pinnate leaves with long fine leaflets. Newly opening fronds have a pink tinge." |
| 402 | 2012. WRA Specialist. Personal Communication. | [Allelopathic? Unknown] |
| 403 | 2012. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/ | [Parasitic? No] Arecaceae |
| 404 | 2000. Haynes, J./McLaughlin, J.. Edible Palms and Their Uses - Fact Sheet MDCE-00-50-1. University of Florida IFAS Ext., Homestead, FL http://miami-dade.ifas.ufl.edu/old/programs/urbanhort/publications/PDF/EdiblePalms.pdf | [Unpalatable to grazing animals? Unknown] "Heterospathe elata - Sagisi palm (solitary - Philippines). Seed sometimes used as a substitute for betelnut" [No information found on palatability of foliage] |
| 405 | 2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL | [Toxic to animals? No] No evidence of toxicity reported in genus |
| 406 | 1978. Donselman, H.M.. Palms Resistant to Lethal Yellowing for Florida. Proceedings of the Florida State Horticultural Society. 91: 99-101. | [Host for recognized pests and pathogens? No evidence] "The sub-tropical environment of South Florida allows the cultivation of over 500 species of palms. Residential and commercial plantings utilize only 10-15 species commonly available from the nursery. Now that lethal yellowing is threatening many of the more common palms in cultivation, the tropical atmosphere, so effectively created by palms, is in jeopardy. To insure the future of Florida's palms and maintain the unique setting necessary for the tourist trade and residents, new palms resistant to lethal yellowing must be developed." ... "Another promising resistant species is the sagisi palm (Heterospathe elata Scheff.)" |
| 406 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Host for recognized pests and pathogens? No evidence] |
| 407 | 2000. Haynes, J./McLaughlin, J.. Edible Palms and Their Uses - Fact Sheet MDCE-00-50-1. University of Florida IFAS Ext., Homestead, FL http://miami-dade.ifas.ufl.edu/old/programs/urbanhort/publications/PDF/EdiblePalms.pdf | [Causes allergies or is otherwise toxic to humans? No evidence] "Heterospathe elata - Sagisi palm (solitary - Philippines). Seed sometimes used as a substitute for betelnut" |
| 407 | 2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL | [Causes allergies or is otherwise toxic to humans? No evidence] |
| 408 | 2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney. | [Creates a fire hazard in natural ecosystems? No evidence] "Native to the Philippines, this tall palm grows naturally in humid rainforest locations." [Unlikely given natural habitat] |
| 409 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Is a shade tolerant plant at some stage of its life cycle? Yes. Understory rainforest palm for much of its life cycle] "Heterospathe elata is widespread in the Philippines, Micronesia, and the Moluccas in rain forest at low elevations, where it can be an undergrowth subject for years before usually ending up as an emergent canopy tree." |
| 410 | 2012. Betrock's Palm World. Guide to Landscape Palms - Heterospathe elata [Accessed 16 Oct 2012]. http://palmworld.net/Guide2.asp?PALMID=100 | [Tolerates a wide range of soil conditions? Yes] "Soil Requirements: Widely adaptable" |
| 411 | 2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney. | [Climbing or smothering growth habit? No] "It has a slender, single trunk and a crown of slightly arching pinnate leaves with long fine leaflets." |
| 412 | 1990. Fernando, E.S.. The Genus Heterospathe (Palmae: Arecoideae) in the Philippines. Kew Bulletin. 45(2): 219-234. | [Forms dense thickets? No evidence in native range] |
| 412 | 2008. Yoshioka, J.M.. Botanical survey of the War in the Pacific National Historical Park Guam, Mariana Islands. Pacific Cooperative Studies Unit Technical Report 161. University of Hawaii, Department of Botany, Honolulu, HI. | [Forms dense thickets? Unknown. A dominant tree] "Vines climbing on trees included Abrus precatorius and Piper betle. The latter were growing primarily on Heterospathe elata, a non-native and invasive palm that was a dominant tree in disturbed areas of this forest type." |

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| 412 | 2010. Pacific Islands Ecosystems at Risk (PIER). <i>Heterospathe elata</i> - Photo by Anne Brooke, Ph.D., Natural Resources Program Manager, Joint Region Marianas, NAVFACMAR EV2. http://www.hear.org/pier/imagepages/singles/DSC_0093.htm | [Forms dense thickets? Yes] "Dense stands of <i>Heterospathe elata</i> on Guam" [Photograph] |
| 501 | 1990. Fernando, E.S.. The Genus <i>Heterospathe</i> (Palmae: Arecoideae) in the Philippines. Kew Bulletin. 45(2): 219-234. | [Aquatic? No] Terrestrial palm |
| 502 | 2012. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/ | [Grass? No] Arecaceae |
| 503 | 2012. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/ | [Nitrogen fixing woody plant? No] Arecaceae |
| 504 | 2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney. | [Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "It has a slender, single trunk and a crown of slightly arching pinnate leaves with long fine leaflets." |
| 601 | 1990. Fernando, E.S.. The Genus <i>Heterospathe</i> (Palmae: Arecoideae) in the Philippines. Kew Bulletin. 45(2): 219-234. | [Evidence of substantial reproductive failure in native habitat? No evidence] |
| 601 | 2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney. | [Evidence of substantial reproductive failure in native habitat? No evidence] |
| 602 | 2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney. | [Produces viable seed? Yes] "Mature fruit is white and fresh seeds should germinate in 2 to 3 months." |
| 602 | 2012. Dave's Gardern. PlantFiles: Cubanola - PlantFiles: Sagisi Palm - <i>Heterospathe elata</i> [Accessed 16 Oct 2012]. http://davesgarden.com/guides/pf/go/67602/ | [Produces viable seed? Yes] "Propagation Methods: From seed; germinate in vitro in gelatin, agar or other medium" |
| 603 | 2012. WRA Specialist. Personal Communication. | [Hybridizes naturally? Unknown] |
| 604 | 2012. WRA Specialist. Personal Communication. | [Self-compatible or apomictic? Unknown] |
| 605 | 1994. Zomlefer, W.B.. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London | [Requires specialist pollinators? No] "Although early monographers assumed that many palms were anemophilous, the flowers actually are predominantly entomophilous. Common insect vectors include beetles, Hymenoptera, and flies; bats and hummingbirds also have been noted (Henderson 1986)." |
| 605 | 1997. Fuller, D./Dowe, J.L./Doyle, M.F.. A New Species of <i>Heterospathe</i> from Fiji. Principes. 41(2): 65-69. | [Requires specialist pollinators? No. Related species is Hymenoptera pollinated] "Pollination may be achieved by small wasps or bees as these have been observed at the flowers." |
| 606 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Reproduction by vegetative fragmentation? No evidence] "The mature stems of this solitary-trunked species grow to 50 feet high with a diameter of 1 foot." [Solitary-trunked species with no evidence of vegetative spread] |
| 607 | 1978. Donselman, H.M.. Palms Resistant to Lethal Yellowing for Florida. Proceedings of the Florida State Horticultural Society. 91: 99-101. | [Minimum generative time (years)? 4+ Suggests this palm won't reach maturity until it reaches 3-4 years of age] "Another promising resistant species is the sagisi palm (<i>Heterospathe elata</i> Scheff.) This palm is slow growing until it is 3-4 years old at which time it grows rapidly to its ultimate size of 10-12m (30-35 ft.)" |
| 607 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Minimum generative time (years)?] "Its growth rate is slow when young until it forms an aboveground trunk, but moderate to even fast afterwards..." |
| 701 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Unlikely] "The fruits are 0.5 inch wide, rounded, white, and are borne in pendent clusters hanging beneath the leaf crown." [Fruits relatively small but lack means of external attachment] |
| 702 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Propagules dispersed intentionally by people? Yes] "This palm is grace and elegance personified." [Valued as an ornamental] |
| 703 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Propagules likely to disperse as a produce contaminant? Unlikely] "The fruits are 0.5 inch wide, rounded, white, and are borne in pendent clusters hanging beneath the leaf crown." [Fruit relatively large and unlikely to contaminate produce, such as other ornamental plants growing in nurseries, because of the slow growth rate and long time to maturity] |
| 704 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Propagules adapted to wind dispersal? No] "The fruits are 0.5 inch wide, rounded, white, and are borne in pendent clusters hanging beneath the leaf crown." |

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| 705 | 2000. Space, J.C./Falanruw, M.. Observations on invasive plant species in Micronesia. Report to the Pacific Islands Committee, Council of Western State Foresters. USDA Forest Service, Honolulu, HI | [Propagules water dispersed? Potentially moved along streams] "Heterospathe elata (palma brava) palms continue to spread in ravines and slopes of central Guam." |
| 705 | 2008. Yoshioka, J.M.. Botanical survey of the War in the Pacific National Historical Park Guam, Mariana Islands. Pacific Cooperative Studies Unit Technical Report 161. University of Hawaii, Department of Botany, Honolulu, HI. | [Propagules water dispersed? Potentially] "Perennial streams and rivers emerge from springs at the headwaters within this unit, giving rise to unique ravine communities. We observed two basic plant communities associated with gulch systems in the Asan Inland unit. One type was found in gulches that included transition vegetation from the savanna to riparian systems along rivers and streams, hereafter called ravine forest (Figure 10). Trees such as non-native Heterospathe elata, native shrubs such as Melochia villosissima var. villosissima and Jasminum marianum, and a variety of indigenous grasses (e.g., Miscanthus floridulus, Phragmites karka) characterize this ravine forest." |
| 706 | 1997. Fuller, D./Dowe, J.L./Doyle, M.F.. A New Species of Heterospathe from Fiii. Principes. 41(2): 65-69. | [Propagules bird dispersed? Related species may be bird-dispersed] "Dispersal appears to be mainly gravity driven, although Masked Shining Parrots (Prosopaea personata) have been observed foraging on the palms." |
| 706 | 2002. Svenning, J.C.. Non-native ornamental palms invade a secondary tropical forest in Panama. Palms. 46(2): 81-86. | [Propagules bird dispersed? Presumably Yes] "Birds and ants may facilitate invasion Birds seem to be an important seed dispersal vector for non-native palm species into the Gamboa forest..." |
| 706 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Propagules bird dispersed? Presumably Yes] "The fruits are 0.5 inch wide, rounded, white, and are borne in pendent clusters hanging beneath the leaf crown." |
| 707 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Propagules dispersed by other animals (externally)? Unknown] "The fruits are 0.5 inch wide, rounded, white, and are borne in pendent clusters hanging beneath the leaf crown." [Possible that scatter hoarding seed predators, such as introduced rodents, or omnivores such as mongoose may carry fruits away and disperse seeds without ingesting them] |
| 708 | 2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR. | [Propagules survive passage through the gut? Presumably Yes] "The fruits are 0.5 inch wide, rounded, white, and are borne in pendent clusters hanging beneath the leaf crown." |
| 801 | 2012. WRA Specialist. Personal Communication. | [Prolific seed production (>1000/m2)? Unknown] |
| 802 | 2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ | [Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] No information on storage of Heterospathe seeds |
| 802 | 2012. WRA Specialist. Personal Communication. | [Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] |
| 803 | 2012. WRA Specialist. Personal Communication. | [Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species |
| 804 | 2012. WRA Specialist. Personal Communication. | [Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown] |
| 805 | 2012. WRA Specialist. Personal Communication. | [Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown] |

Summary of Risk Traits

High Risk / Undesirable Traits

- Naturalized in Tahiti and possibly Guam (but may be native to this island)
- Thrives in tropical climates
- Possible environmental weed in Guam (may be excluding or outcompeting native vegetation)
- Form dense stand in Guam
- Tolerates many soil conditions (and potentially able to exploit many different habitat types)
- Shade tolerant
- Fleshy-fruits adapted for bird and mammal dispersal

Low Risk / Desirable Traits

- Will only grow in warm, tropical climates
- Unarmed (no spines, thorns or burrs)
- Non-toxic
- Edible seed sometimes used as a substitute for betelnut
- Landscaping and ornamental value
- Slow growing for 3-4 years. Unlikely to reach maturity until after 4 years.