Family: ***Melastomataceae***

Taxon: ***Melastoma sanguineum***

Synonym: *Melastoma decemfidum Roxb. ex Jack* ***Common Name*** red melastome
fox-tongued melastoma

Questionaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** H(HPWRA)
Status: Assessor Approved **Data Entry Person:** Chuck Chimera **WRA Score 11**

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)**	**y**
305	**Congeneric weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**y**
401	**Produces spines, thorns or burrs**	**y=1, n=0**	**n**
402	**Allelopathic**	**y=1, n=0**	
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**	
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**	
410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**y=1, n=0**	
411	**Climbing or smothering growth habit**	**y=1, n=0**	**n**

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**	**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**	
704	**Propagules adapted to wind dispersal**	**y=1, n=-1**	**n**
705	**Propagules water dispersed**	**y=1, n=-1**	**n**
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**	**y**
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: H(HPWRA) **WRA Score** **11**

Supporting Data:

101	2011. WRA Specialist. Personal Communication.	[Is the species highly domesticated? No] No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Species suited to tropical or subtropical climate(s)? 2 = High] "Native to the Malay Peninsula, Java, Sumatra, Vietnam and southeastern China"
202	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Quality of climate match data? 2 = High]
203	2007. Chen, J./Renner, S.S.. Flora of China. Vol. 13. - Melastomataceae. Missouri Botanical Gardenand Harvard University Herbaria, Beijing & St. Louis	[Broad climate suitability (environmental versatility)? No] "Open slopes, thickets, grasslands, woodland margins on low hills, trailsides; below 400 m. Fujian, Guangdong, Guangxi, Hainan [India, Indonesia, Malaysia]."
203	2011. Dave's Garden. PlantFiles: Red Melastoma, Fox Tongue Melastoma - Melastoma sanguineum. http://davesgarden.com/guides/pf/go/116808/	"Hardiness: USDA Zone 9b: to -3.8 °C (25 °F) 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	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Native to the Malay Peninsula, Java, Sumatra, Vietnam and southeastern China"
205	2011. WRA Specialist. Personal Communication.	[Does the species have a history of repeated introductions outside its natural range? Unknown] Information of introduction outside Hawaiian Islands is limited, although other websites and books discuss its cultivation as an ornamental.
301	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Naturalized beyond native range? Yes] "in Hawaii occasionally cultivated on Hawaii, where it escapes and flourished in mesic sites in the Keaukaha area and along the highway between Volcano and Hilo."
302	2007. Randall, R.P.. Global Compendium of Weeds - Melastoma sanguineum [Online Database]. http://www.hear.org/gcw/species/melastoma_sanguineum/	[Garden/amenity/disturbance weed? No] An escaped ornamental that is invading natural areas in Hawaii. See 3.04
303	2007. Randall, R.P.. Global Compendium of Weeds - Melastoma sanguineum [Online Database]. http://www.hear.org/gcw/species/melastoma_sanguineum/	[Agricultural/forestry/horticultural weed? No] An environmental weed. See 3.04
304	1992. Tanimoto, V.M./Char, W.P.. Alien Plant Control on State Lands Including Natural Areas. Pp 536-550 in Stone, C.P. et al. (eds.). Alien Plant Invasions in Native Ecosystems of Hawaii: Management & Research. University of Hawaa CPSU, Honolulu, HI	[Environmental weed? Yes] "Table 1. Weeds listed for control by four Division of Forestry and Wildlife field offices, 1975-present." [includes Melastoma sanguineum on Hawaii and Kauai]
304	2003. Starr, F./Starr, K./Loope, L.L.. Melastoma spp. - Asian Melastome - Melastomataceae. USGS - Biological Resources Haleakala Field Station Maui, www.hear.org/starr/hiplants/reports/pdf/melastoma_spp.pdf	"Invasiveness: Melastoma candidum escapes from cultivation and is now naturalized on Kaua'i, O'ahu, and Hawai'i in mesic to wet areas and bog margins (Conant 1996, Wagner et al. 1999). M. sanguineum also escapes cultivation and naturalizes in mesic sites on the island of Hawai'i in the Keaukaha area and along the highway between Volcano and Hilo (Wagner et al. 1999). Both species form dense monotypic thickets up to 2 m tall and can crowd out native vegetation."
304	2011. DOFAW. Hawaii's Most Invasive Horticultural Plants - fox-tongued melastoma - Melastoma sanguineum. http://www.state.hi.us/dlnr/dofaw/hortweeds/species/melsan.htm	"Risk areas: Moist and wet areas, up to 4000 ft. elevation."

305	1985. Smith, C.W.. Impact of Alien Plants on Hawaii's Native Biota. Pp. 180-250 in Stone & Scott (eds.). Hawaii's terrestrial ecosystems: preservation and management (proceedings of a symposium held June 5-6, 1984 at Hawaii Volcanoes National Park. CPSU,	"Melastoma malabathricum L. (Indian rhododendron) This noxious, spreading shrub forms tangled brush up to 2 m tall which crowds out all other species. Its berry-like fruit is dispersed by frugivorous birds. There is no information on its adaptation to fire. Although Gardner and Davis (1982) suggested that it has been partially controlled by Selca brunella Hampson caterpillars, there is little evidence of any decrease in population levels."
305	1992. Jacobi, J.D./Warshauer, F.R.. Distribution of Six Alien Plant Species in Uplant Habitats on the Island of Hawaii. Pp. 155-188 in Stone, C.P. et al. (eds.). Alien Plant Invasions in Native Ecosystems of Hawaii: Management & Research. UH CPSU, Honolul	[Congeneric weed? Yes] "Malabar melastome is a moderate sized shrub native to Southeast Asia. It was introduced as an ornamental to the island of Kauai from Florida in 1916 (Haselwood and Motter 1983). This species is currently considered a problem weed on the islands of Kauai and Hawaii where it grows into dense thickets up to 6.5 ft (2 m) tall, displacing native vegetation. Dispersal is primarily by birds and other animals that feed on the plant's berry-like fruits. All species in the genus Melastoma are listed as noxious by the Hawaii Department of Agriculture (1978)."
401	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Produces spines, thorns or burrs? No] "Erect shrubs or small trees 2-4 (-8) m tall, branches and petioles sparsely covered with spreading, smooth hairs 5-15 mm long, but often intermixed with or replaced by appressed, smooth, subulate hairs usually 1 mm or less long. Leaves ovate-lanceolate, (8) 10-20 cm long, 2-4 (-6.5) cm wide, 5 (7) nerved, upper surface moderately covered with hairs that are adnate to the epidermis for most of their length, lower surface strigillose with scattered appressed, lanceolate scales on the elevated nerves, margins entire, apex acuminate to attenuate, base obtuse to rounded, petioles 10-20 (-30) mm long."
402	2008. Faravani, M./Baki, H.B./Khalij, A.. Assessment of Allelopathic Potential of Melastoma malabathricum L. on Radish raphanus sativus L. and Barnyard Grass (Echinochloa crus-galli). Notulae Botanicae Horti Agrobotanici Cluj-Napoca. 36(2): 54-60.	[Allelopathic? Unknown] "Melastoma malabathricum L. is a weedy invasive shrub in arable lands, abandoned farmlands, secondary forest openings and derelict areas in Malaysia. Some allelochemicals present in this plant extracts may, directly, prevent or promote germination when environmental conditions are conducive to growth and establishment. It may have an important role, indirectly, in determining plant community structures. The aqueous extract and methanol extracts , were assayed for the aqueous extract of fresh materials with concentrations of 0, 50,100,150 and 200 gl-1 and at aqueous of oven dried materials extract with concentrations of 40,80,120,160,and 200 gl 1 .The crude methanol extracts were prepared using extract concentrations of 10.8,14.28 ,18 and 30 gl-1 of shoot and root materials. The extracts were tested with the widely used radish seed barnyard grass seed. Radish seed germination was inhibited at concentrations ranging from 200 gl-1 in the extract aqueous of dried materials and in the methanol extract concentrations of 14.28 and 30 gl-1 .The inhibition of root and shoot growth was also observed in the Barnyard grass seed. Both species were susceptible to allelopathy by extracts isolated from shoot and root of M. malabathricum and also their rate of germination, root length and shoot length in were decreased upon the application of both type of extractions. The results from this study strongly suggest that allelopathy may be a possible mechanism controlling the timing of barnyard grass germination and seedling establishment." [related species may be allelopathic, but unknown for M. sanguineum]
403	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Parasitic? No] "Melastomataceae...Erect shrubs or small trees 2-4 (-8) m tall…"
404	2011. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown] No information found on palatability
405	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	[Toxic to animals? No] No evidence of toxicity to animals.
406	2011. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens? Unknown] No information found on pests or pathogens of this plant.
407	2005. Hu, Shiu-ying. Food plants of China. Chinese University Press, Hong Kong	"Ripe fruits; eaten by people living in Hainan Island…" [no evidence of toxicity to humans]
407	2006. Wiart, C.. Medicinal plants of Asia and the Pacific. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No] "In Cambodia, Laos, and Vietnam, a decoction of the aerial parts is used to treat diarrhea, dysentery, and genital infection. In Cambodia, the roots are used to invigorate, and are boiled to make a drink that is used for vertigo and weakness, and they are used as an ingredient in a treatment for jaundice. The pharmacological potential of this plant is unexplored as of yet."

408	2007. Chen, J./Renner, S.S.. Flora of China. Vol. 13. - Melastomataceae. Missouri Botanical Gardenand Harvard University Herbaria, Beijing & St. Louis	[Creates a fire hazard in natural ecosystems? Probably not] ""Open slopes, thickets, grasslands, woodland margins on low hills, trailsides; below 400 m. Fujian, Guangdong, Guangxi, Hainan…" [could potentially carry fire if growing in a thicket, but no evidence that this species is adapted to frequent burning, or fire prone ecosystems in native range]
409	2011. Dave's Garden. PlantFiles: Red Melastoma, Fox Tongue Melastoma - Melastoma sanguineum. http://davesgarden.com/guides/pf/go/116808/	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Sun Exposure: Sun to Partial Shade"
410	2003.. Kong, X./Lin, W./Gao, L./Hao, H.. A Preliminary Experiment on Slope Rehabilitation with Vetiver & Native Plants in South China. Pp.411-414 in Proc. Third International Conference on Vetiver & Exhibition. China Agricuture Press,	[Tolerates a wide range of soil conditions? Unknown] "Eight native species, Psychotria asiatica, Melastoma sanguineum, Rhaphiolepis indica, Gardenia Jasminoides, Mussaenda pubescens, Rhodomyrtus tomentosa, Gordonia axillarisye, and Melastoma candidum were selected to grow on exposed sites and in poor soil conditions…" [tolerance of poor soil conditions suggests adaptability]
411	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Climbing or smothering growth habit? No] "Erect shrubs or small trees 2-4 (-8) m tall…"
412	2000. Meyer, K.. The Melastomataceae Home Page. http://www.uni-mainz.de/FB/Biologie/Botanikspeziell/web_old/Botanikspeziell/oldPages/Melastomataceae/index.html	[Forms dense thickets? Yes] "In thickets near the seashore."
412	2003. Starr, F./Starr, K./Loope, L.L.. Melastoma spp. - Asian Melastome - Melastomataceae. USGS - Biological Resources Haleakala Field Station Maui, www.hear.org/starr/hiplants/reports/pdf/melastoma_spp.pdf	"Invasiveness: Melastoma candidum escapes from cultivation and is now naturalized on Kaua'i, O'ahu, and Hawai'i in mesic to wet areas and bog margins (Conant 1996, Wagner et al. 1999). M. sanguineum also escapes cultivation and naturalizes in mesic sites on the island of Hawai'i in the Keaukaha area and along the highway between Volcano and Hilo (Wagner et al. 1999). Both species form dense monotypic thickets up to 2 m tall and can crowd out native vegetation."
412	2005. Starr, F./Starr, K.. Plants of Hawaii - Melastoma sanguineum. http://www.hear.org/starr/images/image/?q=011205-0135&o=plants	"Habit thicket at Keaukaha, Hawaii. December 05, 2001. "
501	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Aquatic? No] "Erect shrubs or small trees 2-4 (-8) m tall…" [terrestrial]
502	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Grass? No] Melastomataceae
503	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Nitrogen fixing woody plant? No] Melastomataceae
504	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Erect shrubs or small trees 2-4 (-8) m tall…"
601	2005. Hu, Shiu-ying. Food plants of China. Chinese University Press, Hong Kong	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	2005. Hu, Shiu-ying. Food plants of China. Chinese University Press, Hong Kong	[Produces viable seed? Yes] "fruits hemispherical, 1-1.6 cm long, 1-1.5 cm across, covered with curved bristles, carnose, irregularly split on one side, exposing the scarlet red placentae and numerous seeds."
603	2001. Renner, S.S./Meyer, K.. Melastomeae come full circle: biogeographic reconstruction and molecular clock dating. Evolution. 55(7): 1315–1324.	[Hybridizes naturally? Unknown] "Melastoma X sanguineum Sims...Cultivated BG Mainz" [TABLE 1 indicates that a cultivated hybrid exists, but it is unknown whether this species can hybridize naturally]
604	1993. Gross, C.L.. The Breeding System and Pollinators of Melastoma affine (Melastomataceae); A Pioneer Shrub in Tropical Australia. Biotropica. 25(4): 468-474.	[Self-compatible or apomictic? Unknown] "Melastoma affine is self-compatible but does not produce fruit via autogamy or apomixis, i.e., pollen vectors are required for fruit set. The colonizing success of this species is thus dependent on the presence of a pollinator population." [related species is self-compatible, but unknown for M. sanguineum]

605	2001. Corlett, R.T.. Pollination in a degraded tropical landscape: a Hong Kong case study. Journal of Tropical Ecology. 17(1): 155-161.	[Requires specialist pollinators? No] Most of the plant species for which Apis visits were rare or absent were visited by carpenter bees, lepidoptera, wasps or calliphorid flies. Several species of carpenter bee, Xylocopa spp., were apparently the only pollinators of Melastoma sanguineum, and also predominated on Fagerlindia canthiodes and Rhodomyrtus tomentosa. Melastoma sanguineum has apically porose anthers from which the pollen must be `buzzed', which Apis cerana is apparently unable to do. Various smaller bees that visited Melastoma and Rhodomyrtus did not usually contact the stigmas. Carpenter bees were active only in air temperatures above 23±25 °C…" [although Melastoma sanguineum is most effectively pollinated by carpenter bees and larger bee species, carpenter bees are widely distributed and Xylocopa species are established in the Hawaiian Islands]
606	2003.. Kong, X./Lin, W./Gao, L./Hao, H.. A Preliminary Experiment on Slope Rehabilitation with Vetiver & Native Plants in South China. Pp.411-414 in Proc. Third International Conference on Vetiver & Exhibition. China Agricuture Press,	Reproduction by vegetative fragmentation? No] "Table 2. The Species Selected for the Slopes Rehabilitation … Melastoma sanguineum … Propagation … Seeds or cutting" [no evidence]
607	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Minimum generative time (years)? Probably <4 years] "Erect shrubs or small trees 2-4 (-8) m tall…" [although exact time to reproductive maturity is unknown, this fast-growing shrub that colonizes roadsides and disturbed areas probably reaches reproductive maturity in less than 4 years]
701	2003. Starr, F./Starr, K./Loope, L.L.. Melastoma spp. - Asian Melastome - Melastomataceae. USGS - Biological Resources Haleakala Field Station Maui, www.hear.org/starr/hiplants/reports/pdf/melastoma_spp.pdf	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "M. sanguineum also escapes cultivation and naturalizes in mesic sites on the island of Hawai'i in the Keaukaha area and along the highway between Volcano and Hilo (Wagner et al. 1999)." [distribution along roads suggests that propagules are likely to be spread unintentionally. Small seeded]
702	2003. Pienaar, K.. South African 'What Flower Is That'?. Struik Publishers, Cape Town, South Africa	[Propagules dispersed intentionally by people? Yes] "Showy purple-pink flowers are 50 to 80 mm across." [cultivated as an ornamental]
702	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	"In Hawaii this species has been cultivated on several islands, where it escapes locally in wet areas."
703	2010. NBII. Hawaii Early Detection Network - Have you seen Asian or Red Melastome?. U.S. Geological Survey, http://pbin.nbii.org/reportapest/pestlist/melspp.htm	[Propagules likely to disperse as a produce contaminant? Potentially] "Melastomataceae have also been observed moving inter-island hitchhiking on hapu'u fern (Cibotium spp.) being sold for garden plantings." [possibility that seeds could be spread inter-island, but no direct evidence that this has yet occurred]
704	2000. Meyer, K.. The Melastomataceae Home Page. http://www.uni-mainz.de/FB/Biologie/Botanikspeziell/web_old/Botanikspeziell/oldPages/Melastomataceae/index.html	[Propagules adapted to wind dispersal? No] "Fruits campanulate, fleshy capsules, 8--19 x 8--18 mm, rupturing irregularly longitudinally at maturity, exposing the solid, yellow pulp with orange seeds. Seeds minute, cochleate."
705	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules water dispersed? No] "Berries 6-celled, 15-17 mm long" [no evidence of or adaptations for water dispersal]
706	1996. Corlett, R.T.. Characteristics of Vertebrate-Dispersed Fruits in Hong Kong. Journal of Tropical Ecology. 12(6): 819-833.	"Appendix I. Characteristics of 153 vertebrate dispersed fruits from Hong Kong" [Melastoma sanguineum observed to be bird-dispersed]
706	1998. Corlett, R.T.. Frugivory and seed dispersal by birds in Hong Kong shrubland. Forktail. 13: 23-27.	"The plant species consumed by most bird species included the shrub land dominants at KARC, Eurya chinensis, Litsea rotundifolia, Melastoma sanguineum and Rhodomyrtus tomentosa…"
706	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules bird dispersed? Yes] "Berries 6-celled, 15-17 mm long" [fleshy-fruited]
707	2010. NBII. Hawaii Early Detection Network - Have you seen Asian or Red Melastome?. U.S. Geological Survey, http://pbin.nbii.org/reportapest/pestlist/melspp.htm	[Propagules dispersed by other animals (externally)?] "From gardents, plants readily escape and are further spread by fruit eating birds and other mammals." [small seed size of approximately 0.5 mm diameter suggests seeds could be dispersed in mud, or on feet and/or fur of mammals]

708	1998. Corlett, R.T.. Frugivory and seed dispersal by birds in Hong Kong shrubland. Forktail. 13: 23-27.	"The plant species consumed by most bird species included the shrub land dominants at KARC, Eurya chinensis, Litsea rotundifolia, Melastoma sanguineum and Rhodomyrtus tomentosa…"
708	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules survive passage through the gut? Yes] "Berries 6-celled, 15-17 mm long" [fleshy-fruited; presumably adapted to survive gut passage]
801	2005. Hu, Shiu-ying. Food plants of China. Chinese University Press, Hong Kong	[Prolific seed production (>1000/m2)? Unknown] "fruits hemispherical, 1-1.6 cm long, 1-1.5 cm across, covered with curved bristles, carnose, irregularly split on one side, exposing the scarlet red placentae and numerous seeds." [precise seed densities unknown, but several Melastomataceae produce abundant amounts of small seeds. Melastoma seeds are 0.5-1.0 mm diameter]
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/	Longevity of seeds in storage unknown.
802	2011. WRA Specialist. Personal Communication.	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown]
803	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching,L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI http://www.ctahr.hawaii.edu/invweed/weedsHi.html	[Well controlled by herbicides? Probably yes] "Melastoma candidum…Sensitive to hormone-type herbicides 2,4-D, dicamba, and triclopyr at 1 lb/acre, and to metsulfuron at 0.45 oz/acre. Sensitive to basal bark and stump applications of 2,4-D and triclopyr at 4% product in diesel." [Presumably herbicides treatments used on invasive Melastoma candidum would also be effective on M. sanguineum]
804	2011. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown] No information found on this plants ability to coppice or tolerate burning.
805	2005. Starr, F./Starr, K.. Plants of Hawaii - Melastoma sanguineum. http://www.hear.org/starr/images/image/?q=011205-0135&o=plants	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Possibly] "Biological control: Several moth species (Lepidoptera) have been purposely introduced as biological control agents for M. candidum (as M. malabathricum in Teramoto and Heu 2000). Two moths in the family Pyralidae have been released. Bocchoris adipalis Zell., native to Malaysia, was released in 1964 (Teramoto and Heu 2000). Another, Bocchoris fatualis (Lederer), native to the Philippines, was released in 1958 and is now established on Kaua'i (Teramoto and Heu 2000). A moth in the Arctiidae family, Selca brunella Hampson, native to Malaysia, was released in 1964 and is now established on the island of Hawai'i (Teramoto and Heu 2000)." [unknown if biological control agents are effective against Melastoma sanguineum]