

Family: *Verbenaceae*

Taxon: *Stachytarpheta mutabilis*

Synonym: *Verbena mutabilis* Jacq. (basionym)

Common Name: pink snakeweed
coral porterweed

Questionnaire :	current 20090513	Assessor:	Patti Clifford	Designation: H(HPWRA)
Status:	Assessor Approved	Data Entry Person:	Patti Clifford	WRA Score 12
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)	n
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)	y
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)	n
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	
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	
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	
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	y
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	1
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	y
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	
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	
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: H(HPWRA)

WRA Score 12

Supporting Data:

101	2010. WRA Specialist. Personal Communication.	No evidence of domestication that reduce invasive characteristics.
102	2010. WRA Specialist. Personal Communication.	N/A
103	2010. WRA Specialist. Personal Communication.	N/A
201	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	Native range: Mexico - Guerrero, Hidalgo, Jalisco, Mexico, Michoacan, Veracruz, Chiapas; Cuba; Hispaniola; Jamaica; Trinidad; French Guiana; Guyana; Suriname; Venezuela; Colombia.
202	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	Native range: Mexico - Guerrero, Hidalgo, Jalisco, Mexico, Michoacan, Veracruz, Chiapas; Cuba; Hispaniola; Jamaica; Trinidad; French Guiana; Guyana; Suriname; Venezuela; Colombia.
203	2011. Dave's Garden. Plant files: red porterweed, pink snakeweed <i>Stachytarpheta mutabilis</i> . Dave's Garden, http://davesgarden.com/guides/pf/go/55216/	Hardiness: USDA Hardiness Zones: USDA Zone 9a: to -6.6 °C (20 °F) 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) USDA Zone 8b: to -9.4 °C (15 °F)
204	2010. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	Native range: Mexico - Guerrero, Hidalgo, Jalisco, Mexico, Michoacan, Veracruz, Chiapas; Cuba; Hispaniola; Jamaica; Trinidad; French Guiana; Guyana; Suriname; Venezuela; Colombia.
205	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 to the Neotropics from Mexico to northern South America and the West Indies, widely naturalized elsewhere, commonly cultivated as fences or hedges."
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 on Kauai, Hawaii and widely elsewhere.
302	2007. Department of Primary Industries and Fisheries. Fact sheet: invasive plants and animals - snakeweed and its control <i>Stachytarpheta</i> spp. - biosecurity Queensland. Department of Primary Industries and Fisheries, www.dpi.qld.gov.au	"Weeds of roadsides, neglected areas and pastures as well as sugar cane." [does not mention impacts or control or the roadside areas]
303	2007. Department of Primary Industries and Fisheries. Fact sheet: invasive plants and animals - snakeweed and its control <i>Stachytarpheta</i> spp. - biosecurity Queensland. Department of Primary Industries and Fisheries, www.dpi.qld.gov.au	<i>Stachytarpheta mutabilis</i> "becomes a problem when ground cover is eliminated or reduced. In pastures, it is a definite indication of overstocking." Herbicide and cutting are used to control <i>S. mutabilis</i> in pastures in Queensland.
304	2010. WRA Specialist. Personal Communication.	No evidence of impact or control efforts.
305	2007. Department of Primary Industries and Fisheries. Fact sheet: invasive plants and animals - snakeweed and its control <i>Stachytarpheta</i> spp. - biosecurity Queensland. Department of Primary Industries and Fisheries, www.dpi.qld.gov.au	<i>Stachytarpheta urticifolia</i> , <i>S. Cayennensis</i> , <i>S. jamaicensis</i> are serious weeds along coastal Queensland. They are weeds of roadsides, neglected areas and pastures as well as sugar cane. "Snakeweed becomes a problem when ground cover is eliminated or reduced. In pastures, it is a definite indication of overstocking."
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.	No spines, thorns, or burrs.

402	2010. WRA Specialist. Personal Communication.	Unknown.	
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.	Not parasitic.	
404	2010. WRA Specialist. Personal Communication.	Unknown.	
405	2010. WRA Specialist. Personal Communication.	Unknown.	
406	2010. WRA Specialist. Personal Communication.	Unknown.	
407	2010. National Center for Biotechnology Information. PubMed. U.S. National Library of Medicine, Bethesda, Maryland http://www.ncbi.nlm.nih.gov/sites/entrez	No evidence of allergies or toxicity in PubMed.	
407	2010. Specialized Information Services, U.S. National Library of Medicine. TOXNET Toxicology Data Network [Online Database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	No evidence in ToxNet of allergies or toxicity to humans.	
408	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.	Herbaceous to subshrub.	
408	2010. WRA Specialist. Personal Communication.	Unlikely.	
409	2001. Haynes, J./McLaughlin, J./Vasquez, L./Hunsberger, A.. Low-maintenance landscape plants for south Florida ENH854. Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University o	Full sun to partial shade.	
409	2011. Dave's Garden. Plant files: red porterweed, pink snakeweed <i>Stachytarpheta mutabilis</i> . Dave's Garden, http://davesgarden.com/guides/pf/go/55216/	Full sun.	
410	2011. Dave's Garden. Plant files: red porterweed, pink snakeweed <i>Stachytarpheta mutabilis</i> . Dave's Garden, http://davesgarden.com/guides/pf/go/55216/	Soil pH requirements: 6.6 to 7.5 (neutral) 7.6 to 7.8 (mildly alkaline)	6.1 to 6.5 (mildly acidic)
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.	Perennial herbs or subshrubs 10-20(-50) dm tall.	
412	2010. WRA Specialist. Personal Communication.	Unknown.	
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.	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.	Verbenaceae.	
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.	Perennial herbs or subshrubs. Verbenaceae	
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.	Not a geophyte.	

601	2010. WRA Specialist. Personal Communication.	No evidence.
602	2002. Smith, N.M.. Weeds of the wet/dry tropics of Australia -a field guide. Environment Centre NT, Inc.,	"Seeds are also dispersed on vehicles, by the movement of soil in refuse from gardens and by rainwater. "
602	2009. Wilson, S.B./Knox, G.W./Muller, K.L./Freyre, R./Deng, Z.. Seed production and viability of eight porterweed selections grown in northern and southern Florida. HortScience. 44: 1842-1849.	Viable seeds.
603	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.	Stachytarpheta mutabilis hybridizes with <i>S. urticifolia</i> .
604	2010. WRA Specialist. Personal Communication.	Unknown.
605	1988. Stone, G.N./Amos, J.N./Stone, T.F./Knight, R.L./Gay, H./Parrott, F.. Thermal effects on activity patterns and behavioural switching in a concourse of foragers on <i>Stachytarpheta mutabilis</i> (Verbenaceae) in Papua New Guinea. Oecologia. 77: 56-63.	"The foraging activities of the papilionid butterflies <i>Ornithoptera riamusp oseeidon</i> and <i>Papilio ulysses</i> , and the solitary bee <i>Amegilla sapiens</i> (Apoidea, Anthophoridae) on the shrub <i>Stachytarpheta mutabilis</i> were studied in highland Papua New Guinea." [a concourse of visitors]
606	1995. Oakman, H.. Harry Oakman's what flowers when: the complete guide to flowering times in tropical and subtropical gardens. University of Queensland Press, http://books.google.com/books?id=2YeYo0p_4zUC&dq=stachytarpheta+mutabilis+%2B+%22soil%22&source	Raised from seed or cuttings.
607	2009. Wilson, S.B./Knox, G.W./Muller, K.L./Freyre, R./Deng, Z.. Seed production and viability of eight porterweed selections grown in northern and southern Florida. HortScience. 44: 1842-1849.	Fast-growing.
701	2002. Smith, N.M.. Weeds of the wet/dry tropics of Australia -a field guide. Environment Centre NT, Inc.,	"Seeds are also dispersed on vehicles, by the movement of soil in refuse from gardens and by rainwater. In Queensland [Australia] they have been spread in fodder, hay and in contaminated pasture seed."
702	2011. Dave's Garden. Plant files: red porterweed, pink snakeweed <i>Stachytarpheta mutabilis</i> . Dave's Garden, http://davesgarden.com/guides/pf/go/55216/	Propagules are available through Dave's Garden.
703	2002. Smith, N.M.. Weeds of the wet/dry tropics of Australia -a field guide. Environment Centre NT, Inc.,	"Seeds are also dispersed on vehicles, by the movement of soil in refuse from gardens and by rainwater. In Queensland [Australia] they have been spread in fodder, hay and in contaminated pasture seed."
704	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.	Fruit a dry, oblong-linear schizocarp, splitting at maturity into 2 hard cocci, enclosed by the persistent calyx. Seed 1, linear. [genus definition][no adaptation for wind dispersal]
705	2002. Smith, N.M.. Weeds of the wet/dry tropics of Australia -a field guide. Environment Centre NT, Inc.,	Seeds are also dispersed on vehicles, by the movement of soil in refuse from gardens and by rainwater.
706	1980. Linhart, Y.B.. Local biogeography of plants on a Caribbean atoll. Journal of Biogeography. 7: 159-171.	<i>Stachytarpheta jamaicensis</i> is dispersed by external attachment to birds.
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.	Fruit a dry, oblong-linear schizocarp, splitting at maturity into 2 hard cocci, enclosed by the persistent calyx. Seed 1, linear. [genus definition]
706	2010. WRA Specialist. Personal Communication.	Unknown [possibly]
707	2002. Smith, N.M.. Weeds of the wet/dry tropics of Australia -a field guide. Environment Centre NT, Inc.,	"Seeds are also dispersed on vehicles, by the movement of soil in refuse from gardens and by rainwater. In Queensland [Australia] they have been spread in fodder, hay and in contaminated pasture seed."

708	2010. WRA Specialist. Personal Communication.	Unknown.
801	2009. Wilson, S.B./Knox, G.W./Muller, K.L./Freyre, R./Deng, Z.. Seed production and viability of eight porterweed selections grown in northern and southern Florida. HortScience. 44: 1842-1849.	According to this experiment on seed production of <i>Stachytarpheta mutabilis</i> from plants grown in Florida, <i>S. mutabilis</i> would potentially produce 100 seedlings per plant. This number is based on an avg. of 179 seeds per spike, 49/26 spikes per plant and includes the seed viability and germination rate.
802	2010. WRA Specialist. Personal Communication.	Unknown.
803	2010. WRA Specialist. Personal Communication.	Unknown.
805	2010. WRA Specialist. Personal Communication.	Unknown.
