

Taxon: <i>Plectranthus amboinicus</i>	Family: Lamiaceae
Common Name(s): country borage French thyme Indian borage Indian mint Mexican mint soup mint Spanish thyme	Synonym(s): Coleus amboinicus Lour. (basionym) Plectranthus aromaticus Roxb.

Assessor: Assessor	Status: Assessor Approved	End Date: 5 Mar 2014
WRA Score: 4.0	Designation: L	Rating: Low Risk

Keywords: Naturalized, Weedy, Edible Herb, Rarely Flowers, Spreads Vegetatively

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?		
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	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)	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		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	n
405	Toxic to animals	y=1, n=0	n

Qsn #	Question	Answer Option	Answer
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	n
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		
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	n
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
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)		
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	n
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		
801	Prolific seed production (>1000/m ²)	y=1, n=-1	n
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		
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Horticultural and botanical references give conflicting information on the place of origin for <i>P. amboinicus</i> , but a taxonomic revision of the southern African <i>Plectranthus</i> species states with some degree of certainty that it is native to Africa, from Kenya west to Angola and south to Mozambique and the vicinity of Swaziland on the east coast. It may have reached Asia via Arab or Portuguese traders departing from the Mozambique port of Lorenzo Marques (now Maputo)." [Limited flowering and seed set in cultivation may be due to long history of cultivation]
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2014. 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
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 2 Mar 2014]	"Native: AFRICA East Tropical Africa: Kenya; Tanzania South Tropical Africa: Angola; Mozambique Southern Africa: South Africa - KwaZulu-Natal [n.]; Swaziland"

Qsn #	Question	Answer
202	Quality of climate match data	High
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. <i>Plectranthinae</i> . <i>Kew Bulletin</i> , 59(3): 379-414	"DISTRIBUTION: Possibly native to India (Keng 1978). Widely cultivated in the tropics." [Origins not well known]
	Smith, A.C. 1991. <i>Flora Vitiensis Nova: a new flora of Fiji Volume 5</i> . National Tropical Botanical Garden, Lawai, HI	" <i>Plectranthus amboinicus</i> has often been considered of unknown origin; it is widely cultivated in the Indo-Malesian region and is now almost pantropical in cultivation and naturalization. Launert (1968) suggests that , since the species is known from "natural habitats" in southern tropical Africa. that region may have been its place of origin. from which it may have been distributed by seafaring Portuguese to the East." [Origins not well known, but suited to tropical climates]

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. <i>Plectranthinae</i> . <i>Kew Bulletin</i> , 59(3): 379-414	"ECOLOGY: Cultivated, sometimes naturalised; sea level up to 1500 m." [Tropical, but elevation exceeds 1500 m, demonstrating some environmental versatility]

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Smith, A.C. 1991. <i>Flora Vitiensis Nova: a new flora of Fiji Volume 5</i> . National Tropical Botanical Garden, Lawai, HI	"In Fiji <i>Plectranthus amboinicus</i> is seen from near sea level to about 250 m., sometimes cultivated but also naturalized in rocky and sandy areas in woods and thickets;" ... " <i>Plectranthus amboinicus</i> has often been considered of unknown origin; it is widely cultivated in the Indo-Malesian region and is now almost pantropical in cultivation and naturalization."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Eggl, U. 2002. <i>Illustrated handbook of succulent plants: Dicotyledons</i> . Springer-Verlag, Berlin - Heidelberg - New York	"...now widely distributed in cultivation in the Far East,. West Indies and tropical America"
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"False oregano is widely grown in Hawaii as a culinary herb, the oregano-flavored leaves being a substitute for true oregano (<i>Origanum vulgare</i>)."
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. <i>Plectranthinae</i> . <i>Kew Bulletin</i> , 59(3): 379-414	"Widely cultivated in the tropics."

301	Naturalized beyond native range	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Big Island Invasive Species Committee (BIISC). 2010. Control and Eradication of Invasive Species in Hawai'i. USDA Forest Service Report. May 8, 2008 – December 31, 2009. http://www.hawaiiinvasivespecies.org/iscs/biisc/pdfs/biiscusfsreport200912.pdf . [Accessed]	"Cuban oregano (<i>Plectranthus amboinicus</i>) • Cuban oregano was identified as a new naturalized record for the Big Island and recommended for control. However, when the field crew began control, it was found to be too widespread and not feasible for treatment."
	PlantNET. 2014. New South Wales Flora Online - <i>Plectranthus amboinicus</i> . http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Plectranthus~amboinicus . [Accessed 3 Mar 2014]	"Distribution and occurrence: Occasionally naturalized in coastal districts. Native of Afr. NSW subdivisions: *NC, *CC"
	Smith, A.C. 1991. Flora Vitiensis Nova: a new flora of Fiji Volume 5. National Tropical Botanical Garden, Lawai, HI	"In Fiji <i>Plectranthus amboinicus</i> is seen from near sea level to about 250 m., sometimes cultivated but also naturalized in rocky and sandy areas in woods and thickets;"
	Batianoff, G. N., Naylor, G. C., Olds, J., & Neldner, V. J. 2009. Distribution patterns, weed incursions and origins of terrestrial flora at the Capricorn-Bunker Islands, Great Barrier Reef, Australia. <i>Cunninghamia</i> , 11(1): 107-121	" <i>Plectranthus amboinicus</i> (soup mint) recorded at Lady Elliot Island. Planted as a spice herb in the staff gardens and is currently spreading along the western shores of the Casuarina forest."
	Hoff, M., Cremers, G., & Boggan, J. 1996. Studies on the flora of the Guianas n 84. New records for French Guiana, 1992-1994. <i>Willdenowia</i> , 26(1-2): 1-2	" <i>Plectranthus amboinicus</i> Lour. – Wittingthon, V. 41 (det.: Harley, R.M. 1993). – Cultivated in the vicinity of Remire (Ile de Cayenne), new to the Guianas." [But not naturalized?]

302	Garden/amenity/disturbance weed	y
	Source(s)	Notes
	Big Island Invasive Species Committee (BIISC). 2010. Control and Eradication of Invasive Species in Hawai'i. USDA Forest Service Report. May 8, 2008 – December 31, 2009. http://www.hawaiiinvasivespecies.org/iscs/biisc/pdfs/biiscusfsreport200912.pdf . [Accessed]	"Cuban oregano (<i>Plectranthus amboinicus</i>) • Cuban oregano was identified as a new naturalized record for the Big Island and recommended for control. However, when the field crew began control, it was found to be too widespread and not feasible for treatment." [Recommended for control for potential impacts]
	Yuncker, T.G. 1959. Plants of Tonga. Bishop Museum Bull. 220. Bishop Museum Press, Honolulu, HI	"frequent as a waste-area and roadside weed"
	Liogier, H.A. 1995. Descriptive flora of Puerto Rico and adjacent islands: Spermatophyta, Volume IV. Melastomataceae to Lentibulariaceae. La Editorial, UPR, San Juan, Puerto Rico	"Occasionally escaped from cultivation, PR, Mona, Vieques; occasional in the West Indies" [Not regarded as a weed]
	Vander Velde, N. 2003. The Vascular Plants of Majuro Atoll, Republic of the Marshall Islands. Atoll Research Bulletin 503: 1-141	"Recent introduction. Africa and India to Indonesia. Rare. Very aromatic, densely pubescent, somewhat succulent, low sprawling perennial herb. Initially found in a planter box at Amata Kabua International Airport but was subsequently extirpated there, then found in household gardens, including one at Lojkar Resort. Can become invasive (NVV 1999; RRT 2000AB) (DPMJO 162, DPMJO387).***" [Concerns expressed over potential invasiveness]

Qsn #	Question	Answer
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
304	Environmental weed	n
	Source(s)	Notes
	Pacific Islands Ecosystems at Risk (PIER). 2006. <i>Plectranthus amboinicus</i> . http://www.hear.org/Pier/species/plectranthus_amboinicus.htm . [Accessed 4 Mar 2014]	Naturalized in a number of Pacific Islands, but no evidence of negative environmental impacts
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence
305	Congeneric weed	y
	Source(s)	Notes
	Macdonald, I.A.W., Reaser, J.K., Bright, C., Neville, L.E., Howard, G.W., Murphy, S.J. & Preston, G. (eds.) 2003. Invasive alien species in southern Africa: national reports & directory of resources. Global Invasive Species Programme, Cape Town, South Africa	" <i>Plectranthus comosus</i> : Category 3 (Declared invader): • No further plantings allowed (except with special permission) • No trade of propagative material • Existing plants may remain but must be prevented from spreading • Prohibited within 30 m of the 1:50 year floodline of watercourses or wetlands unless authorisation obtained"
401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort. (Lamiaceae) in continental South East Asia II. <i>Plectranthinae</i> . <i>Kew Bulletin</i> , 59(3): 379-414	"Erect or ascending perennial herbs up to 1 m tall, strongly aromatic. Stems branched, round or round-quadrangular, hollow when old, glabrescent below, pubescent to villous above, with simple and glandtipped hairs. Leaves fleshy, orbicular or broadly ovate, 35 - 50 x 25 - 55 mm, apex rounded or obtuse, base round or truncate, margin crenate, hirsute above, pubescent to tomentose beneath, veins conspicuous beneath; petioles 5-25 mm long, pubescent to villous."
402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

Qsn #	Question	Answer
403	Parasitic	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414	"Erect or ascending perennial herbs up to 1 m tall, strongly aromatic." [Lamiaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Crescent Bloom. 2004. <i>Plectranthus amboinicus</i> . http://crescentbloom.com/plants/specimen/pi/Plectranthus%20amboinicus.htm . [Accessed 4 Mar 2014]	"Deer resistant - no" [Presumably palatable to deer]
	Chang, J. M., Cheng, C. M., Hung, L. M., Chung, Y. S., & Wu, R. Y. 2010. Potential use of <i>Plectranthus amboinicus</i> in the treatment of rheumatoid arthritis. Evidence-Based Complementary and Alternative Medicine, 7(1): 115-120	" <i>P. amboinicus</i> belonging to the to Lamiaceae family, is a perennial with a 3- to 10-years life span, and is distributed in Tropical Africa, Asia and Australia, is used as food, additive and fodder, and especially as medicine in treating a wide range of diseases (7)." [Presumably palatable due to use as fodder]
	Lukhoba, C. W., Simmonds, M. S., & Paton, A. J. 2006. <i>Plectranthus</i> : A review of ethnobotanical uses. Journal of Ethnopharmacology, 103(1): 1-24	" <i>Plectranthus</i> spp. are mostly used as dry season fodder."

405	Toxic to animals	n
	Source(s)	Notes
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	Rahayu, M. 1999. <i>Plectranthus L'Hér.</i> [Internet] Record from Proseabase. de Padua, L.S., Bunyapraphatsara, N. and Lemmens, R.H.M.J. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 4 Mar 2014]	"Diseases and pests In India, <i>Plectranthus amboinicus</i> is recorded as a host of the root-knot nematode <i>Meloidogyne incognita</i> "
	Fine Gardening. 2014. <i>Plectranthus amboinicus</i> (Mexican mint, Indian borage). http://www.finegardening.com/plantguide/plectranthus-amboinicus-mexican-mint.aspx . [Accessed 4 Mar 2014]	"Problems: Occasionally, spider mites, mealybugs, leaf spots, and root rot will occur."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"False oregano is widely grown in Hawaii as a culinary herb, the oregano-flavored leaves being a substitute for true oregano (<i>Origanum vulgare</i>)." [No evidence of toxicity]

Qsn #	Question	Answer
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414	"The fresh leaves are used in beef salad in Thailand." [No evidence of toxicity]
	Lukhoba, C. W., Simmonds, M. S., & Paton, A. J. 2006. Plectranthus: A review of ethnobotanical uses. Journal of Ethnopharmacology, 103(1): 1-24	"The three species of Plectranthus reported as food additives are Plectranthus amboinicus, Plectranthus esculentus and Plectranthus crassus (Table 2). The leaves of Plectranthus amboinicus are used in food stuffings (Purseglove, 1987), for flavouring and marinating beef and chicken (Epling, 1981; Kuebel and Tucker, 1988; Bodner and Gereau, 1988; Craig and Mayenda, 1990; Brown, 1997), to mask odor of strong smells associated with goat, fish and shellfish (Morton, 1992) and to spice dishes containing tomato sauces (Mayenda, 1991). The leaves are sometimes eaten raw with bread and butter and in India, they may be added to beer and wine (Morton, 1992)." [Consumed in a variety of ways, with no evidence of toxicity reported]
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"A mound-forming succulent perennial herb, up to 5 feet in diameter and about 3 feet tall if left untrimmed, intensely scented like oregano." [Succulent herb, unlikely to carry fire]

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	Notes
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"Exposure: Full sun; this species thrives in dry, sunny locations. When grown under shady or partly shady conditions, it becomes scraggly and unattractive." [Would likely be outcompeted by more shade tolerant plants]

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes
	Fine Gardening. 2014. Plectranthus amboinicus (Mexican mint, Indian borage). http://www.finegardening.com/plantguide/plectranthus-amboinicus-mexican-mint.aspx . [Accessed 4 Mar 2014]	"Moderately fertile, well-drained soil..."
	Dave's Garden. 2014. PlantFiles: Spanish Thyme, Cuban Oregano, Indian Borage - Plectranthus amboinicus. http://davesgarden.com/guides/pf/go/1356/ . [Accessed 4 Mar 2014]	"Soil pH requirements: 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral) 7.6 to 7.8 (mildly alkaline)"

411	Climbing or smothering growth habit	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414	"Erect or ascending perennial herbs up to 1 m tall, strongly aromatic."
412	Forms dense thickets	n
	Source(s)	Notes
	Smith, A.C. 1991. Flora Vitiensis Nova: a new flora of Fiji Volume 5. National Tropical Botanical Garden, Lawai, HI	"Sprawling and somewhat succulent herb to 1 m high, sometimes subliguous and prostrate at base" [Could possibly crawl over other vegetation, but no evidence of thicket formation]
501	Aquatic	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414	"ECOLOGY: Cultivated, sometimes naturalised; sea level up to 1500 m." [Terrestrial]
502	Grass	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414	"Erect or ascending perennial herbs up to 1 m tall, strongly aromatic." [Lamiaceae]
503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414	"Erect or ascending perennial herbs up to 1 m tall, strongly aromatic." [Lamiaceae]
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414	"Erect or ascending perennial herbs up to 1 m tall, strongly aromatic." [Lamiaceae. No evidence]
601	Evidence of substantial reproductive failure in native habitat	n

Qsn #	Question	Answer
	Source(s)	Notes
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"Horticultural and botanical references give conflicting information on the place of origin for <i>P. amboinicus</i> , but a taxonomic revision of the southern African <i>Plectranthus</i> species states with some degree of certainty that it is native to Africa, from Kenya west to Angola and south to Mozambique and the vicinity of Swaziland on the east coast." [Although native range not known, there is no evidence that this species is experiencing substantial reproductive failure]

602	Produces viable seed	y
	Source(s)	Notes
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"Propagation Methods: Seed: Rarely grown from seed because the plants seldom flower and set seed." [Seeds may be produced, but rarely and in limited numbers]
	Fine Gardening. 2014. <i>Plectranthus amboinicus</i> (Mexican mint, Indian borage). http://www.finegardening.com/plantguide/plectranthus-amboinicus-mexican-mint.aspx . [Accessed 4 Mar 2014]	"Propagation: Divide in spring or take stem-tip cuttings anytime. To start from seed, sow when ripe at 66° to 75°F."

603	Hybridizes naturally	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort. (Lamiaceae) in continental South East Asia II. <i>Plectranthinae</i> . Kew Bulletin, 59(3): 379-414	No hybrids documented
	Rahayu, M. 1999. <i>Plectranthus L'Hér.</i> [Internet] Record from Proseabase. de Padua, L.S., Bunyapraphatsara, N. and Lemmens, R.H.M.J. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 4 Mar 2014]	No hybrids documented

604	Self-compatible or apomictic	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

605	Requires specialist pollinators	n
	Source(s)	Notes
	Rahayu, M. 1999. <i>Plectranthus L'Hér.</i> [Internet] Record from Proseabase. de Padua, L.S., Bunyapraphatsara, N. and Lemmens, R.H.M.J. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 4 Mar 2014]	"Growth and development <i>Plectranthus</i> usually flowers throughout the year. <i>Plectranthus amboinicus</i> rarely flowers in Malesia. The flowers are insect-pollinated."

Qsn #	Question	Answer
606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"False oregano can be easily propagated by just breaking off a branch and sticking it in the ground."

607	Minimum generative time (years)	1
	Source(s)	Notes
	Fine Gardening. 2014. <i>Plectranthus amboinicus</i> (Mexican mint, Indian borage). http://www.finegardening.com/plantguide/plectranthus-amboinicus-mexican-mint.aspx . [Accessed 4 Mar 2014]	"Propagation: Divide in spring or take stem-tip cuttings anytime." ... "Growth Pace: Fast Grower" [Flowers infrequently, but ability to spread vegetatively will allow for early reproduction]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"False oregano can be easily propagated by just breaking off a branch and sticking it in the ground." [Possible that plant could be spread by disposing of green waste that could then spread vegetatively]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Eggl, U. 2002. Illustrated handbook of succulent plants: Dicotyledons. Springer-Verlag, Berlin - Heidelberg - New York	"...now widely distributed in cultivation in the Far East,. West Indies and tropical America"
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. <i>Plectranthinae</i> . Kew Bulletin, 59(3): 379-414	"Widely cultivated in the tropics."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"Propagation Methods: Seed: Rarely grown from seed because the plants seldom flower and set seed." [Unlikely. Seeds rarely produced]

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. <i>Plectranthinae</i> . Kew Bulletin, 59(3): 379-414	"Nutlets brown, globose or ovoid, c. 1 mm long, minutely tuberculate or smooth and shining, producing mucilage when wet." [Seeds, if produced, small and possibly moved by wind for short distances, but otherwise lack adaptations for wind dispersal]

Qsn #	Question	Answer
705	Propagules water dispersed	n
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	No evidence, and unlikely. Flowers and seeds rarely produced, at least in the Hawaiian Islands, and vegetative fragments most likely to be spread intentionally by people, rather than by breaking off in water currents.
706	Propagules bird dispersed	n
	Source(s)	Notes
	Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. <i>Plectranthinae</i> . Kew Bulletin, 59(3): 379-414	"Nutlets brown, globose or ovoid, c. 1 mm long, minutely tuberculate or smooth and shining, producing mucilage when wet." [If produced, nutlets may adhere to exterior of birds with mucilage, although they otherwise lack adaptations for internal dispersal by birds]
707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	No evidence, and unlikely. Flowers and seeds rarely produced, at least in the Hawaiian Islands, and vegetative fragments and seeds, when produced, lack means of external attachment.
708	Propagules survive passage through the gut	
	Source(s)	Notes
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"Propagation Methods: Seed: Rarely grown from seed because the plants seldom flower and set seed." [Unknown if seeds, when produced, would survive passage through the gut]
801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Rahayu, M. 1999. <i>Plectranthus L'Hér.</i> [Internet] Record from Proseabase. de Padua, L.S., Bunyaphatsara, N. and Lemmens, R.H.M.J. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 4 Mar 2014]	" <i>Plectranthus amboinicus</i> rarely flowers in Malesia."
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"Propagation Methods: Seed: Rarely grown from seed because the plants seldom flower and set seed." [Seeds may be produced, but rarely and in limited numbers]
802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes

Qsn #	Question	Answer
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"Propagation Methods: Seed: Rarely grown from seed because the plants seldom flower and set seed." [Seeds may be produced, but rarely and in limited numbers. If produced, may persist in soil due to orthodox storage]
	Royal Botanic Gardens Kew. 2008. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ . [Accessed 4 Mar 2014]	"Storage Behaviour: Orthodox Storage Conditions: No problem for long-term storage under IPGRI preferred conditions (SSLR)" [Possibly Yes, although unknown from field conditions]

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. 2014. 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
	Staples, G. & Kristiansen, M.S. 1999. Ethnic culinary herbs: a guide to identification and cultivation in Hawaii. University of Hawaii Press, Honolulu, HI	"False oregano can be easily propagated by just breaking off a branch and sticking it in the ground." [Probably Yes, if vegetative fragments can grow into new plants]

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Thrives in tropical climates
- Elevation range exceeds 1000 m (environmental versatility)
- Widely naturalized
- An disturbance, or garden weed
- Other *Plectranthus* species have become invasive
- Spreads vegetatively by plant fragments
- Starts to spread vegetatively in under 1 year
- May rarely produce seeds

Low Risk Traits

- Rarely produces seeds, and not reported to produce seeds in the Hawaiian Islands
- Requires full sun
- Edible to livestock and people
- Lack of seed production makes long distance and inadvertent dispersal unlikely

Second Screening Results

Reported as a weed of cultivated lands> Yes (See 3.02)

Unpalatable to grazers> No

Known to form dense stands> No

Outcome = Accept (Low Risk)