

Taxon: <i>Salvia leucantha</i> Cav.	Family: Lamiaceae
Common Name(s): Mexican bush sage	Synonym(s): <i>S. leucantha</i> f. <i>iobaphes</i> Fernald

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 22 Feb 2017
WRA Score: 12.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Weedy, Ornamental, Herbaceous, Spreads Vegetatively, Resprouts

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	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		
405	Toxic to animals		
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		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	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		
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m ²)		
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	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	No evidence of domestication

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2017. 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
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 16 Feb 2017]	"Distribution and occurrence: Garden escape, naturalized in Tweed R. and Taree districts. Native of trop. Amer."

202	Quality of climate match data	High
	Source(s)	Notes
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 16 Feb 2017]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Missouri Botanical Garden. 2017. <i>Salvia leucantha</i> . http://www.missouribotanicalgarden.org . [Accessed 16 Feb 2017]	"Zone: 8 to 10"
	Tropicos.org. 2017. Tropicos [Online Database]. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 16 Feb 2017]	Collected from 62 m, 15°28'55"N to 3300-3400 m 16°31'00"S [Elevation range exceeds 3000 m, demonstrating environmental versatility]

204	Native or naturalized in regions with tropical or subtropical climates	y
-----	--	---

Qsn #	Question	Answer
	Source(s)	Notes
	Missouri Botanical Garden. 2017. <i>Salvia leucantha</i> . http://www.missouribotanicalgarden.org . [Accessed 16 Feb 2017]	"Native Range: Mexico and tropical Americas"
	Tropicos.org. 2017. Tropicos [Online Database]. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 16 Feb 2017]	Present in Bolivia, Colombia, Costa Rica, El Salvador, Honduras, Mexico, Panama & Venezuela

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Dave's Garden. 2017. <i>Salvia</i> Species, Mexican Bush Sage <i>Salvia leucantha</i> . http://davesgarden.com/guides/pf/go/1837/ . [Accessed 16 Feb 2017]	Widely cultivated throughout the continental US

301	Naturalized beyond native range	y
	Source(s)	Notes
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 15 Feb 2017]	"Distribution and occurrence: Garden escape, naturalized in Tweed R. and Taree districts. Native of trop. Amer. NSW subdivisions: *NC"
	Narasimhan, D., Arisdason, W., Irwin, S. J., & Gnanasekaran, G. (2009). Invasive Alien Plant Species of Tamil Nadu. In Proc. Natl. Seminar Invasive Alien Species. ENVIS Centre, Department of Environment, Government of Tamil Nadu, Chennai. pp. 29–38	"Table 2 Tropical American Naturalized/Invasive species" [Includes <i>Salvia leucantha</i> but with no details on impacts]
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	[Naturalized and weedy in a number of locations] " <i>Salvia leucantha</i> Cav. Lamiaceae Total N° of Refs: 27 Global Risk Score: 1.44 Rating: Low Habit: perennial Herb Preferred Climate/s: Mediterranean, Tropical Origin: C Am, N Am, S Am Major Pathway/s: Herbal, Ornamental Dispersed by: Humans, Escapee References: Africa-W-760, Australia-N- 945, Australia-W-853, Costa Rica-CN-872, Canary Islands-I-902, Australia-N-354, Portugal-N-1006, Australia-N-1049, Europe-N-819, Gal pagos Islands-CN- 1157, Global-W-1324, Bolivia-N-1630, Cape Verde-N-1558, Global-CD-1611, Bolivia-N-1796, Colombia-N-1796, Eritrea-N-1796, Ethiopia-N-1796, Canary Islands-N-1967, Canary Islands-N-1970, Australia-W-1977, Democratic Republic of the Congo-W-1977, India-W-1977, Peru- W-1977, Portugal-W-1977, Rwanda-W- 1977, Spain-W-1977."
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. 2017. Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/ . [Accessed 16 Feb 2017]	No evidence in Hawaiian Islands to date

302	Garden/amenity/disturbance weed	y
-----	--	----------

Qsn #	Question	Answer
	Source(s)	Notes
	Dave's Garden. 2017. <i>Salvia</i> Species, Mexican Bush Sage <i>Salvia leucantha</i> . http://davesgarden.com/guides/pf/go/1837/ . [Accessed 16 Feb 2017]	[Garden weed] "On Jul 8, 2011, 2QandLearn from Menifee, CA (Zone 9a) wrote: ... I recently asked a plant grower in my area if he still carried this plant, but he had discontinued it because everyone had complained that it was coming up from seed like crazy, all over their gardens" ... "On Oct 2, 2009, mswestover from Yulee, FL (Zone 9a) wrote: Gets woody at the base. I trim it in mid summer. It spreads and will take over a flower bed quickly." ... "On Aug 8, 2003, jkom51 from Oakland, CA (Zone 9b) wrote: This is a very tough, big ever-blooming salvia. In frost-free zones it is important to cut it back regularly, as it will continue to expand until it overruns all its neighbors. I have actually seen it start to break apart granite boulders. Tends to have a rather ungainly, somewhat wild appearance if allowed to grow without occasional pruning."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	[Naturalized and weedy in a number of locations] " <i>Salvia leucantha</i> Cav. Lamiaceae Total N° of Refs: 27 Global Risk Score: 1.44 Rating: Low Habit: perennial Herb Preferred Climate/s: Mediterranean, Tropical Origin: C Am, N Am, S Am Major Pathway/s: Herbal, Ornamental Dispersed by: Humans, Escapee References: Africa-W-760, Australia-N- 945, Australia-W-853, Costa Rica-CN-872, Canary Islands-I-902, Australia-N-354, Portugal-N-1006, Australia-N-1049, Europe-N-819, Gal pagos Islands-CN- 1157, Global-W-1324, Bolivia-N-1630, Cape Verde-N 1558, Global-CD-1611, Bolivia-N-1796, Colombia-N-1796, Eritrea-N-1796, Ethiopia-N-1796, Canary Islands-N-1967, Canary Islands-N-1970, Australia-W-1977, Democratic Republic of the Congo-W-1977, India-W-1977, Peru- W-1977, Portugal-W-1977, Rwanda-W- 1977, Spain-W 1977."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence, but cited as a weed

304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence, but cited as a weed

305	Congeneric weed	y
	Source(s)	Notes
	DiTomaso, J. M., Kyser, G. B., Oneto, et al. 2013. Weed Control in Natural Areas in the Western United States. Weed Research and Information Center, University of California, Davis, CA	" <i>Salvia aethiopsis</i> ... Impacts: Mediterranean sage has spread over 1.3 million acres in the western United States with new infestations occurring each year. It is unpalatable to livestock, but is not considered toxic. It can spread rapidly in degraded big sagebrush communities. Wind-blown plants can lodge in large masses along fencerows. Western states listed as Noxious Weed: California, Colorado, Nevada, Oregon, Washington"

Qsn #	Question	Answer
401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 16 Feb 2017]	[No evidence] "Description: Perennial herb to 130 cm high, shortly woolly with hairs white, often with purple tinge on inflorescence, long and wrinkled; branches erect, with scattered sessile glands. Leaves with lamina lanceolate, 5–13 cm long, 0.7–2 cm wide; apex tapering; base obtuse; margins finely crenate; petiole 1–2 cm long."

402	Allelopathic	
	Source(s)	Notes
	Qasem, J. R., & Abu-Irmaileh, B. E. (1985). Allelopathic effect of <i>Salvia syriaca</i> L.(Syrian sage) in wheat. <i>Weed Research</i> , 25(1), 47-52	[Unknown. Allelopathy documented in genus] "The allelopathic effect of <i>Salvia syriaca</i> L. (Syrian sage) was examined against wheat in glasshouse and laboratory experiments. The germination of wheat grains was delayed, and the development of wheat seedlings was decreased in laboratory experiments by both shoot and rhizome extract. The inhibitory effect of both extracts was most pronounced at 20°C compared with 10 or 15°C. Shoot extracts had more drastic effects than the rhizome extract on germination percentage, shoot and root lengths. In glasshouse experiments fresh and dried shoot of <i>S. syriaca</i> added to soil drastically decreased germination and development of wheat."

403	Parasitic	n
	Source(s)	Notes
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 16 Feb 2017]	"Description: Perennial herb to 130 cm high" [Lamiaceae. Not parasitic]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	Singh, V., Gaur, R. D., & Bohra, B. (2008). A survey of fodder plants in mid-altitude Himalayan rangelands of Uttarakhand, India. <i>Journal of Mountain Science</i> , 5(3): 265-278	"Table 1 Fodder species in the rangeland ecosystems of Uttarakhand Himalaya" [Includes <i>Salvia leucantha</i>]
	Desert Botanical Garden. 2008. Desert Gardening Guides. Rabbit Resistant Plants. https://www.dbg.org . [Accessed 21 Feb 2017]	"This list suggests some desert adapted landscape plants that seem to be less palatable to rabbits." [Includes <i>Salvia leucantha</i>]
	NC Cooperative Extension. 2017. Is There Anything Deer Will Not Eat? https://pender.ces.ncsu.edu/2013/04/is-there-anything-deer-will-not-eat/ . [Accessed 21 Feb 2017]	"Though flowers are a deer favorite, there are several perennials they find less tasty and are less likely to damage. These include drought tolerant, sun loving perennials like the silver leaved 'Powis Castle' artemisia, colorful lantana, spring blooming false indigo (<i>Baptisia</i>) and Arkansas blue star (<i>Amsonia hubrichtii</i>), summer blooming purple coneflowers, cestrum and gaura, and summer and fall flowering perennial salvias like Mexican bush sage (<i>Salvia leucantha</i>), Texas sage (<i>Salvia greggii</i>), and 'Black and Blue' anise sage (<i>Salvia guaranitica</i>)."

Qsn #	Question	Answer
	Missouri Botanical Garden. 2017. <i>Salvia leucantha</i> . http://www.missouribotanicalgarden.org . [Accessed 16 Feb 2017]	"Tolerate: Deer"
	WRA Specialist. 2017. Personal Communication	Potentially unpalatable to certain animals. Reported as unpalatable to deer & rabbits, but as a fodder plant for livestock.

405	Toxic to animals	
	Source(s)	Notes
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 16 Feb 2017]	"Fatal poisoning of stock has been reported from N.S.W. " [Unable to confirm report or find other references corroborating livestock poisoning]
	Singh, V., Gaur, R. D., & Bohra, B. (2008). A survey of fodder plants in mid-altitude Himalayan rangelands of Uttarakhand, India. <i>Journal of Mountain Science</i> , 5(3): 265-278	"Table 1 Fodder species in the rangeland ecosystems of Uttarakhand Himalaya" [Includes <i>Salvia leucantha</i> . No toxicity reported]

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	Garibaldi, A., Bertetti, D., Gilardi, G., Ortu, G., & Gullino, M. L. (2015). First report of <i>Alternaria</i> sp. on <i>Salvia leucantha</i> (Mexican bush sage) in Northern Italy. <i>Protezione delle Colture</i> , 3: 20-22	"Abstract : A new foliar disease has been detected on Mexican bush sage (<i>Salvia leucantha</i>), a plant used in borders as well as grown in pot, in several gardens in Northern Italy. Leaves of affected plants showed small to medium size spots, followed by very intensive chlorosis and premature leaf falling. From infected tissues a fungus with the morphological characteristics of <i>Alternaria</i> was constantly isolated. ITS analysis permitted to confirm such identification as <i>Alternaria</i> sp. This is the first report of <i>Alternaria</i> sp. on <i>S. leucantha</i> in Italy and probably in the world."
	Missouri Botanical Garden. 2017. <i>Salvia leucantha</i> . http://www.missouribotanicalgarden.org . [Accessed 16 Feb 2017]	"Problems No serious insect or disease problems."
	Fine Gardening. 2017. Mexican bush sage <i>Salvia leucantha</i> . http://www.finegardening.com/mexican-bush-sage-salvia-leucantha . [Accessed 16 Feb 2017]	"Problems: Powdery mildew, rust, stem rot, fungal leaf spots, whiteflies, aphids, mealybugs, spider mites."

Qsn #	Question	Answer
407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	University of California. 2012. Safe and Poisonous Garden Plants - Toxic Plants (by common name). http://ucanr.edu/sites/poisonous_safe_plants/Toxic_Plants_by_common_Name_659/ . [Accessed 21 Feb 2017]	"A note on "safe" plants: The plants on this list are generally believed to be safe. However, if you suspect that a child (or adult) has eaten quantities of any of these plants (or any of their parts), or if you notice symptoms such as illness or dermatitis after handling these plants, call your Poison Control Center for additional information: (800) 222-1222." [Salvia spp. regarded as safe]
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence, but toxicity reported for livestock

Qsn #	Question	Answer
408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Evergreen Nursery. 2017. <i>Salvia leucantha</i> . http://www.evergreennursery.com/salvia-leucantha . [Accessed 21 Feb 2017]	"Fire-resistant for defensible space"
	WRA Specialist. 2017. Personal Communication	Unknown. No evidence of increased fire risk from cultivated settings

Qsn #	Question	Answer
409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Missouri Botanical Garden. 2017. <i>Salvia leucantha</i> . http://www.missouribotanicalgarden.org . [Accessed 16 Feb 2017]	"In St. Louis, it is grown as an annual in average to rich, evenly moist, well-drained soils in full sun. Tolerates some light afternoon shade, but generally is best in full sun."
	San Marcos Growers. 2017. <i>Salvia leucantha</i> 'Midnight' - Purple Mexican Sage. http://www.smgrowers.com/ . [Accessed 16 Feb 2017]	"Plant in full sun to light shade and irrigate occasionally to infrequently – is drought tolerant and somewhat rampant growth can be controlled by judicious irrigation practices."
	Fine Gardening. 2017. Mexican bush sage <i>Salvia leucantha</i> . http://www.finegardening.com/mexican-bush-sage-salvia-leucantha . [Accessed 16 Feb 2017]	"Provide moist but well-drained soil in full sun to partial shade."
	Dave's Garden. 2017. <i>Salvia</i> Species, Mexican Bush Sage <i>Salvia leucantha</i> . http://davesgarden.com/guides/pf/go/1837/ . [Accessed 16 Feb 2017]	"Sun Exposure: Full Sun"

Qsn #	Question	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Kellum, J. 2008. Southern Sun: A Plant Selection Guide. Univ. Press of Mississippi, Jackson, MS	"Any well-drained soil, alkaline soil is fine, but not for damp or wet soil."
	Learn 2 Grow. 2017. <i>Salvia leucantha</i> . http://www.learn2grow.com/plants/salvia-leucantha/ . [Accessed 16 Feb 2017]	"Soil pH: Acidic, Neutral Soil Drainage: Well Drained Soil type: Clay, Loam, Sand"

Qsn #	Question	Answer
411	Climbing or smothering growth habit	n
	Source(s)	Notes
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 16 Feb 2017]	"Description: Perennial herb to 130 cm high, shortly woolly with hairs white, often with purple tinge on inflorescence, long and wrinkled; branches erect, with scattered sessile glands."
412	Forms dense thickets	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown. Limited information available from native range. No evidence in cultivation
501	Aquatic	n
	Source(s)	Notes
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 16 Feb 2017]	"Description: Perennial herb to 130 cm high" [Terrestrial herb]
502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 16 Feb 2017]	Family: Lamiaceae (alt.Labiatae) Subfamily: Nepetoideae Tribe: Mentheae Subtribe: Salviinae
503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 16 Feb 2017]	Family: Lamiaceae (alt.Labiatae) Subfamily: Nepetoideae Tribe: Mentheae Subtribe: Salviinae
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	PlantNET. 2017. New South Wales Flora Online - <i>Salvia leucantha</i> . Nation Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 16 Feb 2017]	"Description: Perennial herb to 130 cm high, shortly woolly with hairs white, often with purple tinge on inflorescence, long and wrinkled; branches erect, with scattered sessile glands." [No evidence]

Qsn #	Question	Answer
601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	No evidence. Readily & easily cultivated

602	Produces viable seed	y
	Source(s)	Notes
	Dave's Garden. 2017. <i>Salvia</i> Species, Mexican Bush Sage <i>Salvia leucantha</i> . http://davesgarden.com/guides/pf/go/1837/ . [Accessed 16 Feb 2017]	"On Jul 8, 2011, 2QandLearn from Menifee, CA (Zone 9a) wrote: ... I recently asked a plant-grower in my area if he still carried this plant, but he had discontinued it because everyone had complained that it was coming up from seed like crazy, all over their gardens . . . IF they had pruned it like my mother always did, that could never have happened, and, their plants would have looked 100% more beautiful, too!"
	Missouri Botanical Garden. 2017. <i>Salvia leucantha</i> . http://www.missouribotanicalgarden.org . [Accessed 16 Feb 2017]	"Propagate by seed or by overwintering cuttings taken in late summer."
	Fine Gardening. 2017. Mexican bush sage <i>Salvia leucantha</i> . http://www.finegardening.com/mexican-bush-sage-salvia-leucantha . [Accessed 16 Feb 2017]	"Propagation: Sow seed, or divide plants, in spring. Take cuttings spring through fall."

603	Hybridizes naturally	
	Source(s)	Notes
	Kintzios, S.E. 2000. <i>Sage: the genus Salvia</i> . Harwood Academic Publishers, Amsterdam	[Unknown] "Although there is a few data on the interspecific hybridisation of <i>Salvia</i> species, the application of interspecific crossing might have much more importance in the future based on the outstanding results of the first attempts. Until now, mainly wild growing species have been crossed with <i>S. officinalis</i> and <i>S. sclarea</i> in order to bring useful characteristics into the cultivated species."

604	Self-compatible or apomictic	
	Source(s)	Notes
	Dave's Garden. 2017. <i>Salvia</i> Species, Mexican Bush Sage <i>Salvia leucantha</i> . http://davesgarden.com/guides/pf/go/1837/ . [Accessed 16 Feb 2017]	"On Jul 8, 2011, 2QandLearn from Menifee, CA (Zone 9a) wrote:" ... "I recently asked a plant-grower in my area if he still carried this plant, but he had discontinued it because everyone had complained that it was coming up from seed like crazy, all over their gardens"
	Learn 2 Grow. 2017. <i>Salvia leucantha</i> . http://www.learn2grow.com/plants/salvia-leucantha/ . [Accessed 16 Feb 2017]	"Self-Sowing: No"
	Claßen-Bockhoff, R., Wester, P., & Tweraser, E. (2003). The staminal lever mechanism in <i>Salvia</i> L.(Lamiaceae)-a review. <i>Plant Biology</i> , 5(01), 33-41	[Unknown for <i>S. leucantha</i>] "Due to the specialization for a particular pollinating animal group, the development of the lever mechanism and the various special structures serving pollination, a high degree of outcrossing is expected (Gams, 1927; Huck, 1992). On the other hand, self pollination (autogamy or geitogamy) is also possible (Haque and hosal, 1981) ..."

Qsn #	Question	Answer
605	Requires specialist pollinators	n
	Source(s)	Notes
	Fine Gardening. 2017. Mexican bush sage <i>Salvia leucantha</i> . http://www.finegardening.com/mexican-bush-sage-salvia-leucantha . [Accessed 16 Feb 2017]	"Butterflies and hummingbirds love them. " ... "Characteristics Attracts Butterflies, Attracts Hummingbirds, Showy Flowers"
	Delaplane, K. S., Thomas, P. A., & McLaurin, W. J. (2010). Bee Pollination of Georgia Crop Plants. Bulletin 1106. University of Georgia Cooperative Extension, Athens, GA	"Plants for Year-Round Bee Forage" [Includes <i>Salvia leucantha</i>]

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	San Marcos Growers. 2017. <i>Salvia leucantha</i> 'Midnight' - Purple Mexican Sage. http://www.smgrowers.com/ . [Accessed 16 Feb 2017]	"A quick growing shrub that can reach 3-5 feet tall and as wide as it spreads outward at the base from its rootstock."
	Dave's Garden. 2017. <i>Salvia</i> Species, Mexican Bush Sage <i>Salvia leucantha</i> . http://davesgarden.com/guides/pf/go/1837/ . [Accessed 16 Feb 2017]	"On Jun 4, 2006, Sheila965 from Rincon, GA (Zone 8a) wrote: This is a VERY hardy plant. After a year, it will spread by root."
	Floridata. 2017. <i>Salvia leucantha</i> . http://floridata.com/Plants/Lamiaceae/Salvia%20leucantha/935 . [Accessed 21 Feb 2017]	"Propagation: Mexican bush sage is easy to propagate from root cuttings and stems that have rooted where they touch the ground. Ordinary stem cuttings can also be rooted."

607	Minimum generative time (years)	1
	Source(s)	Notes
	Fine Gardening. 2017. Mexican bush sage <i>Salvia leucantha</i> . http://www.finegardening.com/mexican-bush-sage-salvia-leucantha . [Accessed 16 Feb 2017]	"Growth Pace Fast Grower"
	Missouri Botanical Garden. 2017. <i>Salvia leucantha</i> . http://www.missouribotanicalgarden.org . [Accessed 21 Feb 2017]	[Will flower in one growing season] "Mexican bush sage is an evergreen shrubby perennial that is native to Central America and Mexico. In St. Louis, it is grown as an annual that typically rises 2-3' tall in a single growing season. This sage is most noted for producing a very attractive late summer to frost bloom of showy bicolor flowers consisting of white corollas and longer-lasting funnel-form purple calyces."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Dispersal mechanisms unknown

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	" <i>Salvia leucantha</i> ... Major Pathway/s: Herbal, Ornamental Dispersed by: Humans, Escapee"

Qsn #	Question	Answer
	Evergreen Nursery. 2017. <i>Salvia leucantha</i> . http://www.evergreennursery.com/salvia-leucantha . [Accessed 21 Feb 2017]	Sold commercially online

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown. Cultivated as an ornamental, but no evidence of contamination of other ornamentals, or spontaneous recruitment of this plant in pots or soil of other plants.

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Kubitzki, K. & Kadereit, J.W. (eds.). (2004). The families and genera of vascular plants: Volume VII. Flowering plants, Dicotyledons. Lamiales (except Acanthaceae including Avicenniaceae). Springer-Verlag, Berlin, Heidelberg, New York	[Generic description. No evidence] "nutlets trigonous, ovoid or suborbicular, abscission-scar small, mucilaginous or not."
	Baskin, C.C. & Baskin, J.M. 2014. Seeds Ecology, Biogeography, and Evolution of Dormancy and Germination. Second Edition. Academic Press, San Francisco, CA	[Some <i>Salvia</i> species are ejected, but not wind-dispersed] "Rain may splash seeds from opened containers (Brodie, 1955) or raindrops may strike a "lever mechanism," such as the dried calyx of <i>Salvia</i> , causing seeds to be ejected (Brodie, 1955)."

705	Propagules water dispersed	
	Source(s)	Notes
	Baskin, C.C. & Baskin, J.M. 2014. Seeds Ecology, Biogeography, and Evolution of Dormancy and Germination. Second Edition. Academic Press, San Francisco, CA	Unknown for <i>Salvia leucantha</i> . <i>Salvia hornimum</i> described as being dispersed by rain

706	Propagules bird dispersed	n
	Source(s)	Notes
	Kubitzki, K. & Kadereit, J.W. (eds.). (2004). The families and genera of vascular plants: Volume VII. Flowering plants, Dicotyledons. Lamiales (except Acanthaceae including Avicenniaceae). Springer-Verlag, Berlin, Heidelberg, New York	"nutlets trigonous, ovoid or suborbicular, abscission-scar small, mucilaginous or not." [Generic description. No evidence]

707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	Kubitzki, K. & Kadereit, J.W. (eds.). (2004). The families and genera of vascular plants: Volume VII. Flowering plants, Dicotyledons. Lamiales (except Acanthaceae including Avicenniaceae). Springer-Verlag, Berlin, Heidelberg, New York	"nutlets trigonous, ovoid or suborbicular, abscission-scar small, mucilaginous or not." [Unknown. Mucilage could allow for adherence]

Qsn #	Question	Answer
708	Propagules survive passage through the gut	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown if seeds would be consumed or would survive gut passage

801	Prolific seed production (>1000/m ²)	
	Source(s)	Notes
	Dave's Garden. 2017. <i>Salvia</i> Species, Mexican Bush Sage <i>Salvia leucantha</i> . http://davesgarden.com/guides/pf/go/1837/ . [Accessed]	[Densities unknown] "On Jul 8, 2011, 2QandLearn from Menifee, CA (Zone 9a) wrote: ... I recently asked a plant grower in my area if he still carried this plant, but he had discontinued it because everyone had complained that it was coming up from seed like crazy, all over their gardens "
	WRA Specialist. 2017. Personal Communication	Unknown. Most websites describe vegetative propagation methods, suggesting that seed availability may be limited

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown. <i>Salvia</i> species exhibit a range of dormancy mechanisms

803	Well controlled by herbicides	
	Source(s)	Notes
	Roberts, G. N., & Gibb, D. (1998). Herbicide control of mintweed (<i>Salvia reflexa</i>) in cotton production systems. In Proceedings of the 9 th Australian Agronomy Conference. (Wagga Wagga) (pp. 597-598)	[Unknown. Other <i>Salvia</i> species effectively controlled by herbicides] "The control of mintweed with herbicides in cotton was evaluated over two sites and seasons. Where mintweed plant numbers exceeded 5 plants/m ² , metolachlor mixed with cotton broadleaf herbicides proved the most effective pre-emergent form of control. Post-emergent applications of glyphosate, bromoxynil and glufosinate-ammonium provided excellent control and may be valuable options if transgenic cotton varieties tolerant to the herbicides are released. Rotating cotton fields to sorghum and using atrazine would also be highly desirable in fields heavily infested with mintweed."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Phillips, J. 2015. Growing the Southwest Garden: Regional Ornamental Gardening. Timber Press, Portland, OR	"In frost-free areas, this tropical native benefits from hard pruning as well, since the result is more flower stems per plant."
	Dave's Garden. 2017. <i>Salvia</i> Species, Mexican Bush Sage <i>Salvia leucantha</i> . http://davesgarden.com/guides/pf/go/1837/ . [Accessed 16 Feb 2017]	[Tolerates pruning] "On Aug 8, 2003, jkom51 from Oakland, CA (Zone 9b) wrote: This is a very tough, big ever-blooming salvia. In frost-free zones it is important to cut it back regularly, as it will continue to expand until it overruns all its neighbors. I have actually seen it start to break apart granite boulders. Tends to have a rather ungainly, somewhat wild appearance if allowed to grow without occasional pruning."

Qsn #	Question	Answer
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Grows in tropical climates
- Naturalized in Australia, India & possibly elsewhere (but no evidence to date from Hawaiian Islands)
- Reported to be weedy in gardens & other cultivated settings
- Other *Salvia* species are invasive weeds
- May be unpalatable to animals
- Reported to cause stock poisoning in Australia (unconfirmed)
- Tolerates many soil types
- Reproduces by seeds and vegetatively
- Reaches maturity in one growing season
- Intentionally dispersed by people
- Tolerates heavy pruning & resprouts after cutting

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Ornamental value