

<b>Taxon:</b> <i>Salvia buchananii</i> Hedge	<b>Family:</b> Lamiaceae
<b>Common Name(s):</b> Buchanan's sage fuschia sage purple autumn sage	<b>Synonym(s):</b>

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Assessor Approved	<b>End Date:</b> 15 Feb 2017
<b>WRA Score:</b> 4.0	<b>Designation:</b> L	<b>Rating:</b> Low Risk

**Keywords:** Ornamental, Herbaceous, Unarmed, Non-Toxic, Bird-Pollinated

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	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	n
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)	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	y=1, n=0	n
406	Host for recognized pests and pathogens	y=1, n=0	n
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
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		
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	y
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		
706	Propagules bird dispersed		
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m <sup>2</sup> )		
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?	n
	Source(s)	Notes
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	[No evidence of domestication] "Abstract. <i>Salvia buchananii</i> Hedge is reported for the first time in the wild, after 50 years of having been described from cultivated plants. This species inhabits cloud forests, pine-oak forests and oak thickets, in the northeastern extreme of the state of Querétaro, Mexico. This taxon is similar to <i>Salvia blepharophylla</i> Brandegees (sect. <i>Brandegeia</i> ). A broad description, an illustration, photographs, and a map of geographic distribution of the plant are presented."

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
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Feb 2017]	"Native: Northern America Southern Mexico: Mexico - Queretaro"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Feb 2017]	

Qsn #	Question	Answer
203	<b>Broad climate suitability (environmental versatility)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	"en altitudes de 1 500 a 2 750 m." [At altitudes of 1500 to 2750 m. Elevation range exceeds 1000 m, but only at higher elevations. May only be able to spread at higher elevations of tropical & subtropical islands]
	Dave's Garden. 2017. <i>Salvia</i> Species, Buchanan's Sage, Fuchsia Sage. <i>Salvia buchananii</i> . <a href="http://davesgarden.com/guides/pf/go/59572/">http://davesgarden.com/guides/pf/go/59572/</a> . [Accessed 15 Feb 2017]	"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)"

204	<b>Native or naturalized in regions with tropical or subtropical climates</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	"Abstract. <i>Salvia buchananii</i> Hedge is reported for the first time in the wild, after 50 years of having been described from cultivated plants. This species inhabits cloud forests, pine-oak forests and oak thickets, in the northeastern extreme of the state of Querétaro, Mexico. This taxon is similar to <i>Salvia blepharophylla</i> Brandege (sect. <i>Brandegeia</i> ). A broad description, an illustration, photographs, and a map of geographic distribution of the plant are presented."

205	<b>Does the species have a history of repeated introductions outside its natural range?</b>	<b>?</b>
	<b>Source(s)</b>	<b>Notes</b>
	San Diego Horticultural Society. 2016. <i>The Plant Forum Compilation, Fourth Edition</i> . San Diego Horticultural Society, Encinitas, CA	" <i>Salvia buchananii</i> (Lamiaceae) nativity unknown A 2–3 foot perennial with bushy, upright growth and dark green, shiny foliage. This sage, which might now be extinct in the wild (it was described from Mexico) has deep magenta flowers from spring through fall. It likes well-drained soil in full sun to part shade, and needs only moderate water. (Susi Torre- Bueno, Encinitas, 4/98; Meg Jacobs, San Diego, 5/00; Jim Mackie, Escondido, 7/02) —S.T-B"
	Dave's Garden. 2017. <i>Salvia</i> Species, Buchanan's Sage, Fuchsia Sage. <i>Salvia buchananii</i> . <a href="http://davesgarden.com/guides/pf/go/59572/">http://davesgarden.com/guides/pf/go/59572/</a> . [Accessed 15 Feb 2017]	"This plant has been said to grow in the following regions: Boulder Creek, California Citrus Heights, California Dublin, California Emeryville, California Fairfield, California Glendora, California Martinez, California Sacramento, California (2 reports) San Francisco, California Santa Ana, California Hebron, Kentucky North Augusta, South Carolina Fort Worth, Texas Houston, Texas Seattle, Washington" [Unknown if plants are grown indoors or outdoors]

301	<b>Naturalized beyond native range</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

302	<b>Garden/amenity/disturbance weed</b>	<b>n</b>
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

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

<b>304</b>	<b>Environmental weed</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

<b>305</b>	<b>Congeneric weed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	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	"Salvia aethiopsis ... 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"

<b>401</b>	<b>Produces spines, thorns or burrs</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	"Herbaceous perennial plant, decumbent, branched from the base, rooting in the basal nodes, from 30 to 50 (120) cm in height; Quadrangular stem, sometimes dyed purple, ribbed on opposite sides, puberulent only on ribbed faces, with single, multicellular, extended or retrorsed hairs, less than 0.2 mm long" [Translated from Spanish]

<b>402</b>	<b>Allelopathic</b>	
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	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."
	Bajalan, I., Zand, M., & Rezaee, S. (2013). Allelopathic effects of aqueous extract from <i>Salvia officinalis</i> L. on seed germination of barley and purslane. <i>International Journal of Agriculture and Crop Sciences</i> , 5(7), 802-805	[Unknown. Allelopathy documented in genus] "This study reports on the effect of aqueous extract taken from the aerial parts of <i>Salvia officinalis</i> L., on seeds germination of barley ( <i>Hordeum vulgare</i> .) and purslane ( <i>Portulaca oleracea</i> ) experimentally and in a quiet accidentally frame of 5 treatments and 4 replications. The treatments of the experiment included aqueous extract of <i>S. officinalis</i> L. (in concentrations of 6, 12, 25 and 50 percent) and distilled water (control). The results showed the strong allopathic effect of the extract of <i>S.officinalis</i> L. on germination of barley and <i>Portulaca oleracea</i> seeds in such a way that the statistical comparison indicates the reduction of germination percentage of seeds in treating the aqueous extracts in comparison with control in the level of 5 percent."

403	Parasitic	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Feb 2017]	Family: Lamiaceae (alt.Labiatae) Subfamily: Nepetoideae Tribe: Mentheae Subtribe: Salviinae [No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	The National Gardening Association. 2017. Buchanan's Sage ( <i>Salvia buchananii</i> ) in the <i>Salvias Database</i> . <a href="https://garden.org/plants/view/115648/Buchanans-Sage-Salvia-buchananii/">https://garden.org/plants/view/115648/Buchanans-Sage-Salvia-buchananii/</a> . [Accessed 15 Feb 2017]	"Deer Resistant" [Potentially unpalatable]
	Le Houerou, H.N. (ed.). 1980. <i>Browse in Africa. The Current State of Knowledge</i> . International Livestock Centre for Africa, Addis Ababa, Ethiopia	"Table 7. Palatability Rating" [ <i>Salvia jaminiana</i> and <i>Salvia triloba</i> rated PP: Occasionally palatable or poorly palatable]

405	Toxic to animals	n
	Source(s)	Notes

Qsn #	Question	Answer
	University of California. 2012. Safe and Poisonous Garden Plants - Toxic Plants (by common name). <a href="http://ucanr.edu/sites/poisonous_safe_plants/Toxic_Plants_by_common_Name_659/">http://ucanr.edu/sites/poisonous_safe_plants/Toxic_Plants_by_common_Name_659/</a> . [Accessed 15 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

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	The Royal Horticultural Society. 2017. <i>Salvia buchananii</i> . <a href="https://www.rhs.org.uk/Plants/16315/Salvia-buchananii/Details">https://www.rhs.org.uk/Plants/16315/Salvia-buchananii/Details</a> . [Accessed 15 Feb 2017]	"Pests Generally pest free Diseases Generally disease free "

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). <a href="http://ucanr.edu/sites/poisonous_safe_plants/Toxic_Plants_by_common_Name_659/">http://ucanr.edu/sites/poisonous_safe_plants/Toxic_Plants_by_common_Name_659/</a> . [Accessed 15 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

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown. No evidence of increased fire risk from cultivated settings

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Annie's Annuals. 2017. <i>Salvia buchananii</i> "Fuchsia Sage". <a href="https://www.anniesannuals.com/plants/view/?id=4478">https://www.anniesannuals.com/plants/view/?id=4478</a> . [Accessed 15 Feb 2017]	"Extra-showy 2" long fuzzy fuchsia blooms are pure hummingbird heaven on this SHADE TOLERANT <i>Salvia</i> !"
	The National Gardening Association. 2017. Buchanan's Sage ( <i>Salvia buchananii</i> ) in the <i>Salvias</i> Database. <a href="https://garden.org/plants/view/115648/Buchanans-Sage-Salvia-buchananii/">https://garden.org/plants/view/115648/Buchanans-Sage-Salvia-buchananii/</a> . [Accessed 15 Feb 2017]	"Sun Requirements: Full Sun to Partial Shade Partial or Dappled Shade"

Qsn #	Question	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes
	The Royal Horticultural Society. 2017. <i>Salvia buchananii</i> . <a href="https://www.rhs.org.uk/Plants/16315/Salvia-buchananii/Details">https://www.rhs.org.uk/Plants/16315/Salvia-buchananii/Details</a> . [Accessed 15 Feb 2017]	"Moisture Moist but well-drained Soil Loam pH Acid, Alkaline, Neutral"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	"Herbaceous perennial plant, decumbent, branched from the base, rooting in the basal nodes, from 30 to 50 (120) cm in height; Quadrangular stem, sometimes dyed purple, ribbed on opposite sides, puberulent only on ribbed faces, with single, multicellular, extended or retrorsed hairs, less than 0.2 mm long" [Translated from Spanish]

412	Forms dense thickets	n
	Source(s)	Notes
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	" <i>Salvia buchananii</i> Hedge is reported for the first time in the wild, after 50 years of having been described from cultivated plants. This species inhabits cloud forests, pine-oak forests and oak thickets, in the northeastern extreme of the state of Querétaro, Mexico." [Previously only known from cultivated plants. No evidence from native or introduced ranges]

501	Aquatic	n
	Source(s)	Notes
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	[Terrestrial] "This species inhabits cloud forests, pine-oak forests and oak thickets, in the northeastern extreme of the state of Querétaro, Mexico."

502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Feb 2017]	Family: Lamiaceae (alt.Labiatae) Subfamily: Nepetoideae Tribe: Mentheae Subtribe: Salviinae



Qsn #	Question	Answer
503	<b>Nitrogen fixing woody plant</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Feb 2017]	Family: Lamiaceae (alt.Labiatae) Subfamily: Nepetoideae Tribe: Mentheae Subtribe: Salviinae
504	<b>Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	"Herbaceous perennial plant, decumbent, branched from the base, rooting in the basal nodes, from 30 to 50 (120) cm in height; Quadrangular stem, sometimes dyed purple, ribbed on opposite sides, puberulent only on ribbed faces, with single, multicellular, extended or retrorsed hairs, less than 0.2 mm long" [Translated from Spanish]
601	<b>Evidence of substantial reproductive failure in native habitat</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	[Unknown. No details on reproduction in native range provided] "Salvia buchananni Hedge is reported for the first time in the wild, after 50 years of having been described from cultivated plants. This species inhabits cloud forests, pine-oak forests and oak thickets, in the northeastern extreme of the state of Querétaro, Mexico."
602	<b>Produces viable seed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	"cultivated in Loughborough, Leicestershire, England, raised from seeds collected in a garden in Mexico City"
	Dave's Garden. 2017. <i>Salvia</i> Species, Buchanan's Sage, Fuchsia Sage. <i>Salvia buchananii</i> . <a href="http://davesgarden.com/guides/pf/go/59572/">http://davesgarden.com/guides/pf/go/59572/</a> . [Accessed 14 Feb 2017]	"On Nov 3, 2008, Beebe54 from Warsaw, MO wrote: I grow this plant in a large pot and bring it inside for the winter. Just love the large fuzzy flowers. This year it did very well and even set quite a few seeds."
603	<b>Hybridizes naturally</b>	
	<b>Source(s)</b>	<b>Notes</b>
	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."

Qsn #	Question	Answer
604	Self-compatible or apomictic	
	Source(s)	Notes
	Learn 2 Grow. 2017. <i>Salvia buchananii</i> . <a href="http://www.learn2grow.com/plants/salvia-buchananii/">http://www.learn2grow.com/plants/salvia-buchananii/</a> . [Accessed 15 Feb 2017]	"Self-Sowing No"
	Haque, M. S., & Ghoshal, K. K. (1981). Floral biology and breeding system in the genus <i>Salvia</i> L. Proceedings of the Indian National Science Academy B47(5): 716-724	[Unknown. Self-compatibility documented in genus] "Studies on floral biology and breeding system in 14 species of <i>Salvia</i> , some of them with several varieties revealed that most of them are cross pollinated. Generally large flowered species are outbreeders, and the species with minute flowers are inbreeders. Most of the species possessed both heterostyly i.e. pin, thrum and homostyly flowers. In general, species with large flowers showed the above trend whereas species with minute flowers showed homostyly trend. In the outbreeding species seed setting by open pollination was low. Comparisons of the relative positions of anthers and stigmas in the different species showed that proximity of these organs is directly correlated with good natural seed setting and that the species with pin or thrum flowers do not easily set seed naturally. Along with this factor, the absence of pollinating bees and male sterility are the causes of low seed setting in some species. Interspecific crossability was found to be extremely poor, crosses involving as many species as possible were done, but all of these failed except <i>S. coccinea</i> x <i>S. grahamii</i> which was highly successful. The combination <i>S. splendens</i> x <i>S. coccinea</i> was a limited success. All the species were found to be self-compatible."

605	Requires specialist pollinators	y
	Source(s)	Notes
	The National Gardening Association. 2017. Buchanan's Sage ( <i>Salvia buchananii</i> ) in the Salvias Database. <a href="https://garden.org/plants/view/115648/Buchanans-Sage-Salvia-buchananii/">https://garden.org/plants/view/115648/Buchanans-Sage-Salvia-buchananii/</a> . [Accessed 15 Feb 2017]	"Wildlife Attractant: Bees Butterflie Hummingbirds"
	Wester, P., & Claßen-Bockhoff, R. (2011). Pollination Syndromes of New World <i>Salvia</i> Species with Special Reference to Bird Pollination. <i>Annals of the Missouri Botanical Garden</i> , 98(1), 101-155	"Within the 602 New World <i>Salvia</i> species, 58% are identified to be melittophilous (bee pollinated) and 31% to be ornithophilous (bird pollinated)." ... "Table 1A. Characteristics of the New World ornithophilous <i>Salvia</i> species (n = 184)." [Includes <i>S. buchananii</i> ]

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	The Royal Horticultural Society. 2017. <i>Salvia buchananii</i> . <a href="https://www.rhs.org.uk/Plants/16315/Salvia-buchananii/Details">https://www.rhs.org.uk/Plants/16315/Salvia-buchananii/Details</a> . [Accessed 15 Feb 2017]	[Propagated by cuttings. Stoloniferous habit could allow for some vegetative spread] " <i>S. buchananii</i> is a woody-based stoloniferous perennial to 60cm in height, with leathery, glossy, lance-shaped leaves and loose racemes of hairy, 2-lipped, tubular rosy-purple flowers to 5cm in length" ... "Propagate by softwood cuttings in spring or semi-hardwood in late summer"
	Learn 2 Grow. 2017. <i>Salvia buchananii</i> . <a href="http://www.learn2grow.com/plants/salvia-buchananii/">http://www.learn2grow.com/plants/salvia-buchananii/</a> . [Accessed 15 Feb 2017]	[Yes, but spreads slowly] "Thought to have originated in Mexico, <i>Salvia buchananii</i> forms a clump of glossy, dark green, elliptical foliage which spreads slowly via underground runners."

Qsn #	Question	Answer
607	Minimum generative time (years)	1
	Source(s)	Notes
	The National Gardening Association. 2017. Buchanan's Sage ( <i>Salvia buchananii</i> ) in the Salvias Database. <a href="https://garden.org/plants/view/115648/Buchanans-Sage-Salvia-buchananii/">https://garden.org/plants/view/115648/Buchanans-Sage-Salvia-buchananii/</a> . [Accessed 15 Feb 2017]	"Uses: Suitable as Annual" [Grown for flowers. Presumably flowers in one growing season]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Zamudio, S., & Bedolla-Garcia, B. Y. (2013). Discovery of <i>Salvia buchananii</i> (Lamiaceae) in the wild in Queretaro, Mexico. <i>Revista Mexicana de Biodiversidad</i> , 84(2), 530-535	Dispersal mechanisms unknown

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Cultivated and sold as an ornamental. Available online from a number of websites

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	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.). 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. <i>Seeds Ecology, Biogeography, and Evolution of Dormancy and Germination</i> . 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. 2001. <i>Seeds ecology, biogeography, and evolution of dormancy and germination</i> . Academic Press, San Francisco, CA	Unknown for <i>Salvia buchananii</i> . <i>Salvia horminum</i> described as being dispersed by rain

Qsn #	Question	Answer
706	<b>Propagules bird dispersed</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Kubitzki, K. & Kadereit, J.W. (eds.). 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	<b>Propagules dispersed by other animals (externally)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Kubitzki, K. & Kadereit, J.W. (eds.). 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]
708	<b>Propagules survive passage through the gut</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2017. Personal Communication	Unknown if seeds would be consumed or would survive gut passage
801	<b>Prolific seed production (&gt;1000/m<sup>2</sup>)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2017. Personal Communication	Unknown. Most websites describe vegetative propagation methods, suggesting that seed availability may be limited
802	<b>Evidence that a persistent propagule bank is formed (&gt;1 yr)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Baskin, C.C. & Baskin, J.M. 2014. Seeds Ecology, Biogeography, and Evolution of Dormancy and Germination. Second Edition. Academic Press, San Francisco, CA	Unknown. <i>Salvia</i> species exhibit a range of dormancy mechanisms
803	<b>Well controlled by herbicides</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2017. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species
804	<b>Tolerates, or benefits from, mutilation, cultivation, or fire</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2017. Personal Communication	Unknown

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, but occurs at higher elevation in native range
- Grows in tropical climates
- Other *Salvia* species are invasive weeds
- May be unpalatable to animals
- Shade tolerant
- Reproduces by seeds and vegetatively
- Intentionally dispersed by people
- Limited ecological information reduces accuracy of risk prediction

Low Risk Traits

- No reports of invasiveness or naturalization
- Unarmed (no spines, thorns, or burrs)
- Non-toxic
- Ornamental value

Second Screening Results for Herbs or Low Stature Shrubby Life Forms

(A) Reported as a weed of cultivated lands? No

Outcome = Accept (Low Risk)