

<b>Taxon:</b> <i>Serruria florida</i> (Thunb.) Knight	<b>Family:</b> Proteaceae
<b>Common Name(s):</b> blushing bride pride of Franschhoek skaambloom trots-van-franschoek	<b>Synonym(s):</b> Protea florida Thunb.

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Approved	<b>End Date:</b> 9 Aug 2024
<b>WRA Score:</b> -5.0	<b>Designation:</b> L	<b>Rating:</b> <span style="background-color: yellow;">Low Risk</span>

**Keywords:** Ornamental Shrub, Endangered, Fire-Dependent, Self-Compatible, Ant-Dispersed

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)	Intermediate
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	n
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	n
302	Garden/amenity/disturbance weed	y = 1*multiplier (see Appendix 2), n = 0	n
303	Agricultural/forestry/horticultural weed	y = 2*multiplier (see Appendix 2), n = 0	n
304	Environmental weed	y = 2*multiplier (see Appendix 2), n = 0	n
305	Congeneric weed	y = 1*multiplier (see Appendix 2), n = 0	n
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		
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	n

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y = 1, n = 0	n
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		
604	Self-compatible or apomictic	y = 1, n = -1	y
605	Requires specialist pollinators	y = -1, n = 0	n
606	Reproduction by vegetative fragmentation	y = 1, n = -1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y = 1, n = -1	n
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	y
708	Propagules survive passage through the gut	y = 1, n = -1	n
801	Prolific seed production (>1000/m <sup>2</sup> )		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y = 1, n = -1	y
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y = 1, n = -1	n
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

**Supporting Data:**

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	<b>Source(s)</b>	<b>Notes</b>
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 8 Aug 2024]	[Not domesticated] " <i>Serruria florida</i> is a highly restricted endemic known from one location from the mountains near Franschoek in South Africa. It has an extent of occurrence (EEO) and an area of occupancy (AOO) of 24 km <sup>2</sup> . The only remaining population is experiencing slow ongoing decline as a result of habitat degradation from the spread of invasive alien woody plant species and too infrequent fires. A major future threat to the species is the proposed development of water boreholes to supply the Western Cape with additional water from underground aquifers, should this development take place over 80% of the population will be lost."
102	Has the species become naturalized where grown?	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2024). Personal Communication	NA
103	Does the species have weedy races?	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2024). 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"	Intermediate
	<b>Source(s)</b>	<b>Notes</b>
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	" <i>Serruria florida</i> naturally occurs on the Franschoek side of the Hottentots Holland Nature Reserve. It grows on mountain slopes in soils derived from granite, which is found below the sandstone soils typical of the Table Mountain Group." ... "Zone 2 Coastal winter rainfall, frost free"
202	Quality of climate match data	High
	<b>Source(s)</b>	<b>Notes</b>
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	" <i>Serruria florida</i> naturally occurs on the Franschoek side of the Hottentots Holland Nature Reserve. It grows on mountain slopes in soils derived from granite, which is found below the sandstone soils typical of the Table Mountain Group."
203	Broad climate suitability (environmental versatility)	n
	<b>Source(s)</b>	<b>Notes</b>
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	" <i>Serruria florida</i> naturally occurs on the Franschoek side of the Hottentots Holland Nature Reserve. It grows on mountain slopes in soils derived from granite, which is found below the sandstone soils typical of the Table Mountain Group." ... "Zone 2 Coastal winter rainfall, frost free"

Qsn #	Question	Answer
204	Native or naturalized in regions with tropical or subtropical climates	n
	<b>Source(s)</b>	<b>Notes</b>
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2024). Plants of Hawai'i. <a href="http://www.plantsofhawaii.org">http://www.plantsofhawaii.org</a> . [Accessed 8 Aug 2024]	"Only found in cultivation"
	Rebello, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 8 Aug 2024]	" <i>Serruria florida</i> is a highly restricted endemic known from one location from the mountains near Franschhoek in South Africa. It has an extent of occurrence (EOO) and an area of occupancy (AOO) of 24 km <sup>2</sup> . The only remaining population is experiencing slow ongoing decline as a result of habitat degradation from the spread of invasive alien woody plant species and too infrequent fires. A major future threat to the species is the proposed development of water boreholes to supply the Western Cape with additional water from underground aquifers, should this development take place over 80% of the population will be lost." [The climate in Franschhoek is warm and temperate. During the winter season, precipitation levels in Franschhoek are notably higher compared to those experienced during summer. The Köppen-Geiger climate classification is Csb. ]
	WRA Specialist. (2024). Personal Communication	Occurs in Csb = Warm-summer Mediterranean climate; coldest month averaging above 0 °C (32 °F), all months with average temperatures below 22 °C (71.6 °F), and at least four months averaging above 10 °C (50 °F).

205	Does the species have a history of repeated introductions outside its natural range?	y
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch">https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch</a> . [Accessed 8 Aug 2024]	"Cultivated (also cult.)"
	Brown, N. & Duncan, G. (2006). Grow Fynbos Plants. South African National Biodiversity Institute, Cape Town	"Despite its rarity in nature, the blushing bride, thanks to cultivation, is well known and valued as a garden plant. Its economic potential is high and it is easily grown from seed and responds well to pruning. It is a quick grower, flowering in 15 months from seed,"

301	Naturalized beyond native range	n
	<b>Source(s)</b>	<b>Notes</b>
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2024). Plants of Hawai'i. <a href="http://www.plantsofhawaii.org">http://www.plantsofhawaii.org</a> . [Accessed 8 Aug 2024]	"Only found in cultivation"
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

302	Garden/amenity/disturbance weed	n
	<b>Source(s)</b>	<b>Notes</b>
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	No evidence

Qsn #	Question	Answer
	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>
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	No evidence
	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>
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	No evidence
	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>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	<i>Serruria ciliata</i> cited as a weed of unspecified impacts
<b>401</b>	<b>Produces spines, thorns or burrs</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	"The blushing bride is a single stemmed, erect, evergreen shrub, 0.8-1.5 x 0.5 m. Flowering stems branch off the main stem producing fine, dissected leaves and end in terminal flowering buds. It produces 1-8 ivory to pink flowers per branch. It flowers in winter and spring, from July to October, and produces nut-like seeds which are released about two months later."
<b>402</b>	<b>Allelopathic</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2024). Personal Communication	Unknown. No evidence found

Qsn #	Question	Answer
403	<b>Parasitic</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Goldblatt, P., & Manning, J. (2000). Cape plants: a conspectus of the Cape flora of South Africa. National Botanical Institute, Cape Town	[No evidence] "florida (Thunb.) Salisb. ex Knight blushing bride Willowy shrub to 1.5 m. Leaves dissected, 45–100 mm long. Flower heads few, pink -and white, style 8–12 mm long, pollen presenter slender, involucral bracts longer than flowers, ovate, pale pink. July–Oct. Granite slopes, SW (Franschhoek: Assegaiboskloof) .*"
404	<b>Unpalatable to grazing animals</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 8 Aug 2024]	"The only remaining population is experiencing slow ongoing decline as a result of habitat degradation from the spread of invasive alien woody plant species and too infrequent fires. A major future threat to the species is the proposed development of water boreholes to supply the Western Cape with additional water from underground aquifers, should this development take place over 80% of the population will be lost." [Unknown. Browsing not listed among threats to this species]
405	<b>Toxic to animals</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	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 in the genus
406	<b>Host for recognized pests and pathogens</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	"A root pathogen, Phytophthora, is detrimental to Proteaceae. Symptoms include the plant looking wilted and dry, followed by yellowing and death. As these symptoms are only seen once the fungus has damaged the plant, the best course of action is to remove the infected plant and burn it. Thereafter, sterilize the affected soil with a contact fungicide and refrain from replanting Proteaceae in that area. Good general plant hygiene and healthy vigorous mother stock will increase the potential of younger plants to remain healthy."
407	<b>Causes allergies or is otherwise toxic to humans</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	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 in the genus
408	<b>Creates a fire hazard in natural ecosystems</b>	
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	[Relies on fire, but killed by too frequent fires. Unlikely to contribute to increased fire risk if adult plants are killed by fire] " <i>Serruria florida</i> is one of the fynbos species that is highly dependant on a fire ecosystem. The parent plants will die in a fire and only seeds survive to form the next generation. Seeds will only germinate after fire has occurred. Too frequent fires destroy the natural seed bank as young seedlings require two years before they are mature enough to produce flowers and the new seed crop."

409	Is a shade tolerant plant at some stage of its life cycle	n
	<b>Source(s)</b>	<b>Notes</b>
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	"Aspect: Full Sun" ... "It is a water-wise plant and requires a well-drained, sunny position."
	Brown, N. & Duncan, G. (2006). <i>Grow Fynbos Plants</i> . South African National Biodiversity Institute, Cape Town	"Requires acid, well-drained soil in full sun."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	<b>Source(s)</b>	<b>Notes</b>
	Brown, N. & Duncan, G. (2006). <i>Grow Fynbos Plants</i> . South African National Biodiversity Institute, Cape Town	"Requires acid, well-drained soil in full sun."
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	"Soil type: Sandy" ... "It grows on mountain slopes in soils derived from granite, which is found below the sandstone soils typical of the Table Mountain Group."

411	Climbing or smothering growth habit	n
	<b>Source(s)</b>	<b>Notes</b>
	Goldblatt, P., & Manning, J. (2000). <i>Cape plants: a conspectus of the Cape flora of South Africa</i> . National Botanical Institute, Cape Town	"Willowy shrub to 1. 5 m. Leaves dissected, 45-100 mm long. Flower heads few, pink -and white, style 8-12 mm long, pollen presenter slender, involuclral bracts longer than flowers, ovate, pale pink."

412	Forms dense thickets	n
	<b>Source(s)</b>	<b>Notes</b>
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 8 Aug 2024]	[No evidence] "Over 3,000 plants occur in the upper section of Assegaiboskloof, numbers of mature individuals fluctuate in response to fire with there being many plants present three to eight years following fire and then becoming very scarce as the vegetation ages. While there were regular fires in the late 1990s and early 2000s and the population was very healthy between 2005 and 2010, there has been no burns since 2005 leaving the vegetation moribund with few <i>Serruria florida</i> plants present. "

501	Aquatic	n
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 8 Aug 2024]	"Major system: Terrestrial Major habitats: Kogelberg Sandstone Fynbos, Boland Granite Fynbos Description: It occurs on granite slopes, 600-620 m. Mature individuals are killed by fires, and only seeds survive. Seeds are released after ripening, and dispersed by ants to their underground nests, where they are protected from predation and germinate following fire. It is pollinated by insects. This is a fire ephemeral, flowering at three years following fire, peaking between five and eight years, and then rapidly declining to a few senescent plants by 20 years."

502	Grass	n
	Source(s)	Notes
	Goldblatt, P., & Manning, J. (2000). Cape plants: a conspectus of the Cape flora of South Africa. National Botanical Institute, Cape Town	Proteaceae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	Goldblatt, P., & Manning, J. (2000). Cape plants: a conspectus of the Cape flora of South Africa. National Botanical Institute, Cape Town	Proteaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Goldblatt, P., & Manning, J. (2000). Cape plants: a conspectus of the Cape flora of South Africa. National Botanical Institute, Cape Town	"Willowy shrub to 1.5 m. Leaves dissected, 45-100 mm long. Flower heads few, pink -and white, style 8-12 mm long, pollen presenter slender, involucre bracts longer than flowers, ovate, pale pink."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 9 Aug 2024]	[External factors are affecting recruitment, but the plant is not failing to reproduce absent these influences] " <i>Serruria florida</i> is a highly restricted endemic known from one location from the mountains near Franschhoek in South Africa. It has an extent of occurrence (EOO) and an area of occupancy (AOO) of 24 km <sup>2</sup> . The only remaining population is experiencing slow ongoing decline as a result of habitat degradation from the spread of invasive alien woody plant species and too infrequent fires. A major future threat to the species is the proposed development of water boreholes to supply the Western Cape with additional water from underground aquifers, should this development take place over 80% of the population will be lost."

602	Produces viable seed	y
	Source(s)	Notes
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	"It is possible to propagate <i>Serruria florida</i> from seed and cuttings; however, seed is difficult and vegetative propagation is recommended."

Qsn #	Question	Answer
	Powrie, F. (1998). Grow South African Plants. National Botanical Institute, Kirstenbosch	" <i>Serruria florida</i> Blushing bride, Trots van Franschoek. An erect shrub. The well known large attractive pink flowers with well developed bracts are borne in clusters of up to 8 heads per branch from Jun - Sep; sow seed in autumn; quick-growing but short lived; will flower 15 months from germination."

603	Hybridizes naturally	
	Source(s)	Notes
	De Villiers, M. J. (2004). Molecular systematics of the Western Cape genus <i>Serruria</i> Salisb.(Proteaceae L.) based on DNA sequence data. Masters of Science. Stellenbosch University, Stellenbosch, South Africa	[Possibly. <i>S. florida</i> not listed among hybrids] "In the present study, the spine of the <i>Serruria</i> group is largely unresolved or only weakly supported in most of the analyses, indicating that intra-generic hybridisation could be at play here. Many hybridisation events have been recorded on the Protea Atlas website, including <i>S. cygnea</i> X <i>S. dodii</i> , <i>S. cygnea</i> X <i>S. pedunculata</i> , <i>S. dodii</i> X <i>S. cygnea</i> , <i>S. glomerata</i> X <i>S. vil/osa</i> , <i>S. pedunculata</i> X <i>S. cygnea</i> and <i>S. vil/osa</i> X <i>S. glomerata</i> ( <a href="http://protea.worldonline.co.za/p31hybrd.htm">http://protea.worldonline.co.za/p31hybrd.htm</a> ). However, a lack of res~lutio_~ c()ul~ also be_caused .. by a lack of informative characters, which is definitely the case for the sequences collected for <i>Serruria</i> ."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Van der Walt, I. D. (1995). Pollen biology in relation to artificial hybridization in the genus <i>Protea</i> . PhD Diss. University of Stellenbosch, Stellenbosch	"Southern African Proteaceae show variable levels of self-compatibility. <i>Serruria florida</i> (Horn, 1962) and some species of <i>Leucospermum</i> (Horn, 1962; Rourke, 1972; Brits and Van den Berg, 1990) are reported to be self-compatible"
	Horn, W. (1962). Breeding research in South African plants: II. Fertility of Proteaceae. <i>Journal of South African Botany</i> , 28: 259-268	"The seed set in open-pollinated flowers of <i>Protea</i> , <i>Leucospermum</i> and <i>Serruria</i> was investigated and found to be low. Controlled self-pollinations revealed self-incompatibility in <i>Protea</i> and some <i>Leucospermum</i> species, but self-compatibility in other <i>Leucospermum</i> species and in <i>Serruria florida</i> . Carefully screened seeds of <i>Protea</i> germinated satisfactorily in unsterilized and sterilized soil, and in vermiculite. <i>Leucospermum</i> and <i>Serruria</i> germination did not reach the high level of that in <i>Protea</i> ."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Collins, B. G., & Rebelo, T. (1987). Pollination biology of the Proteaceae in Australia and southern Africa. <i>Australian Journal of Ecology</i> , 12(4), 387-421	"Table 3. Characteristics of flowers for some genera of Proteaceae" [Serruria - Putative Pollinator = Insect]
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 9 Aug 2024]	"These beautiful flowers are pollinated by insects. Seeds are released and dispersed by ants in their underground nests, which form the seed bank."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes

Qsn #	Question	Answer
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 9 Aug 2024]	[Propagated vegetatively, but no evidence of natural vegetative spread] "It is possible to propagate <i>Serruria florida</i> from seed and cuttings; however, seed is difficult and vegetative propagation is recommended. Tip, stem and heel cuttings are taken during late summer. Apply rooting hormone to semi-hardwood cuttings. Place in a propagation soil mixture of 50% milled pine bark and 50% polystyrene granules. Good rooting of the plant will take place if the propagation greenhouse has good misting and under-bench heating. Rooting will take place within four weeks. Rooted cuttings are removed from the mist bench and hardened off for four weeks. The hardened off cuttings are then potted in a soil medium made up of a suitable well-drained soil mixture consisting of composted pine bark, acidic river sand in equal parts loam/topsoil."

607	Minimum generative time (years)	2
	Source(s)	Notes
	Powrie, F. (1998). <i>Grow South African Plants</i> . National Botanical Institute, Kirstenbosch	" <i>Serruria florida</i> Blushing bride, Trots van Franschhoek. An erect shrub. The well known large attractive pink flowers with well developed bracts are borne in clusters of up to 8 heads per branch from Jun - Sep; sow seed in autumn; quick-growing but short lived; will flower 15 months from germination."
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	"Too frequent fires destroy the natural seed bank as young seedlings require two years before they are mature enough to produce flowers and the new seed crop."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 9 Aug 2024]	"These beautiful flowers are pollinated by insects. Seeds are released and dispersed by ants in their underground nests, which form the seed bank."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Brown, N. & Duncan, G. (2006). <i>Grow Fynbos Plants</i> . South African National Biodiversity Institute, Cape Town	"Despite its rarity in nature, the blushing bride, thanks to cultivation, is well known and valued as a garden plant. Its economic potential is high and it is easily grown from seed and responds well to pruning."
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 9 Aug 2024]	"The horticultural industry uses the blushing bride as a popular cut flower and as an ornamental garden plant."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 9 Aug 2024]	"Mature individuals are killed by fires, and only seeds survive. Seeds are released after ripening, and dispersed by ants to their underground nests, where they are protected from predation and germinate following fire."

704	Propagules adapted to wind dispersal	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	De Villiers, M. J. (2004). Molecular systematics of the Western Cape genus <i>Serruria</i> Salisb.(Proteaceae L.) based on DNA sequence data. Masters of Science. Stellenbosch University, Stellenbosch, South Africa	"Myrmecochory is the main mode of seed dispersal in <i>Serruria</i> ( <a href="http://www.nbi.ac.za/protea">www.nbi.ac.za/protea</a> ) and has probably evolved as a survival strategy against fire. Wind dispersal of seeds in Cape plants is believed to be as common as myrmecochory. The dispersal distance depends on the fall-rate of the seeds."

705	Propagules water dispersed	n
	<b>Source(s)</b>	<b>Notes</b>
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 9 Aug 2024]	"Mature individuals are killed by fires, and only seeds survive. Seeds are released after ripening, and dispersed by ants to their underground nests, where they are protected from predation and germinate following fire."

706	Propagules bird dispersed	n
	<b>Source(s)</b>	<b>Notes</b>
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 9 Aug 2024]	"Mature individuals are killed by fires, and only seeds survive. Seeds are released after ripening, and dispersed by ants to their underground nests, where they are protected from predation and germinate following fire. "
	De Villiers, M. J. (2004). Molecular systematics of the Western Cape genus <i>Serruria</i> Salisb.(Proteaceae L.) based on DNA sequence data. Masters of Science. Stellenbosch University, Stellenbosch, South Africa	"Myrmecochory is the main mode of seed dispersal in <i>Serruria</i> ( <a href="http://www.nbi.ac.za/protea">www.nbi.ac.za/protea</a> ) and has probably evolved as a survival strategy against fire. Wind dispersal of seeds in Cape plants is believed to be as common as myrmecochory. The dispersal distance depends on the fall-rate of the seeds. Ornithochory (seed dispersal by birds) is very rare in the CFR (Le Maitre & Midgley 1992). Dispersal distances are also suspected to be quite limited for both wind and bird dispersal (Linder 1985)."

707	Propagules dispersed by other animals (externally)	y
	<b>Source(s)</b>	<b>Notes</b>
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 9 Aug 2024]	"Mature individuals are killed by fires, and only seeds survive. Seeds are released after ripening, and dispersed by ants to their underground nests, where they are protected from predation and germinate following fire." [Theoretically ant dispersed. Unknown if ant species present in Hawaiian Islands are capable of dispersing seeds]

708	Propagules survive passage through the gut	n
	<b>Source(s)</b>	<b>Notes</b>
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 9 Aug 2024]	"Mature individuals are killed by fires, and only seeds survive. Seeds are released after ripening, and dispersed by ants to their underground nests, where they are protected from predation and germinate following fire." [Dispersed externally]

801	Prolific seed production (>1000/m2)	
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 9 Aug 2024]	"Mature individuals are killed by fires, and only seeds survive. Seeds are released after ripening, and dispersed by ants to their underground nests, where they are protected from predation and germinate following fire." [Seed densities unknown]

802	Evidence that a persistent propagule bank is formed (>1 yr)	y
	Source(s)	Notes
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	"These beautiful flowers are pollinated by insects. Seeds are released and dispersed by ants in their underground nests, which form the seed bank."
	Rebelo, A.G. & Raimondo, D. (2020). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. National Assessment: Red List of South African Plants version. <a href="http://redlist.sanbi.org/species.php?species=807-46">http://redlist.sanbi.org/species.php?species=807-46</a> . [Accessed 8 Aug 2024]	"This species has soil stored seed banks that germinate following fire, it does therefore not qualify for population fluctuations as defined by the Guidelines for using the IUCN Red List Categories and Criteria. "
	WRA Specialist. (2024). Personal Communication	Exact longevity unknown, but presumably dependent on fire to stimulate germination

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. (2024). Personal Communication	Unknown. An endangered species not controlled with herbicides in its native or introduced ranges

804	Tolerates, or benefits from, mutilation, cultivation, or fire	n
	Source(s)	Notes
	Adams, T. & McQuillan, M. (2007). <i>Serruria florida</i> (Thunb.) Salisb. ex Knight. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/serruria-florida">https://pza.sanbi.org/serruria-florida</a> . [Accessed 8 Aug 2024]	" <i>Serruria florida</i> is one of the fynbos species that is highly dependant on a fire ecosystem. The parent plants will die in a fire and only seeds survive to form the next generation. Seeds will only germinate after fire has occurred. Too frequent fires destroy the natural seed bank as young seedlings require two years before they are mature enough to produce flowers and the new seed crop."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. (2024). Personal Communication	Unknown

**Summary of Risk Traits:**

*Serruria florida*, commonly known as the blushing bride, is a species of flowering plant in the Proteaceae family. It is native to the fynbos region of South Africa, particularly in the Western Cape. The plant is a small, evergreen shrub that typically grows up to 1.5 meters tall. It has finely divided, needle-like leaves and produces delicate, pink to white, feathery flowers in dense clusters, which give it a soft, almost bridal appearance—hence the name. Blushing bride is highly valued in the cut flower industry for its unique and attractive blooms. In the wild, *Serruria florida* is adapted to the fire-prone fynbos ecosystem, where fire plays a crucial role in its life cycle by stimulating seed germination. However, the species is considered vulnerable due to habitat loss and other environmental pressures. It is not currently reported to be naturalized outside its native range.

**High Risk / Undesirable Traits**

- Reproduces by seeds
- Self-compatible (capable of self-fertilization and seed production)
- Reaches maturity in 15 months to 2 years
- Seeds dispersed by ants and through intentional cultivation
- Forms a persistent seed bank (stimulated to germinate by fire)

**Low Risk Traits**

- No reports of naturalization or invasiveness documented worldwide
- Unarmed (no spines, thorns, or burrs)
- Non-toxic
- Grows best in high light environments (dense shade may inhibit spread)
- Dispersed by ants in its native range, which may limit dispersal in areas where effective ant dispersers are lacking