Taxon: Fuchsia magellanica Lam. **Family:** Onagraceae

Common Name(s): earring flower
hardy fuchsia
kulapepeiao
lady's eardrops

Synonym(s): Fuchsia gracilis Lindl.
Fuchsia macrostemma Ruiz & Pav.

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 9 Jul 2021

WRA Score: 18.0 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Smothering Shrub, Environmental Weed, Self-Compatible, Spreads Vegetatively, Bird-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)	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)	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)	y
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	y
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	n
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n

Qsn #	Question	Answer Option	Answer
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	y
412	Forms dense thickets	y=1, n=0	y
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	y
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides	y=-1, n=1	y
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**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Not domesticated, although less invasive cultivars may potentially exist] "This shrub is highly variable with at least nine varieties. Due to its widespread use as an ornamental a number of cultivars have been developed and a number of hybrids are being planted (Muyt, 2001)."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. (2021). Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. (2021). 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, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 7 Jul 2021]	"Native Southern America SOUTHERN SOUTH AMERICA: Argentina [Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego], Chile"

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 7 Jul 2021]	

203	**Broad climate suitability (environmental versatility)**	**y**
	Source(s)	**Notes**

Qsn #	Question	Answer
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	[In temperate to subtropical climates, and elevation range exceeds 1000 m] "The only species occurring in the southern Andes is F. magellanica, which is characteristic of the wet, temperate, Valdivian forests that are centered in the Region de Los Lagos of Chile. These forests are considered to be relicts of an ancient vegetation type that includes many taxa of Australasian affinity, such as Nothofagus, Drimys, Podocarpus, and Araucaria (Rambo, 1951; Rueck, 1972; Lotschert, 1981). Fuchsia magellanica also extends farther north into drier areas in Chile, where it occurs in moist microhabitats as far north as Santiago and Valparaiso, and then southward to the subantarctic scrub forests of Tierra del Fuego. Throughout its iange, F. magellanica occurs as low as sea level, but only at its northernmost range does it reach its upper altitudinal limit of 1,750 rri.. Seasonality increases southwards, so that in Tierra del Fuego, flowering is restricted to the summer months of December to March, and plants are strongly deciduous in the freezing winter months." ... "Fuchsia magellanica is the only species in sect. Quelusia able to withstand winter conditions with long periods of freezing temperatures, so that all of the hedge plants of fuchsia grown outdoors in England and Ireland are variants of this species or crosses with a strong F. magellanica parentage."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai‘i Press and Bishop Museum Press, Honolulu, HI.	"Native to southern South America; in Hawai'i cultivated and escaping in mesic to wet forest on Kaua'i, Maui, and Hawai'i."
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 7 Jul 2021]	"Native Southern America SOUTHERN SOUTH AMERICA: Argentina [Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego], Chile"

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	**Notes**
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	"Widely cultivated throughout the world and naturalized in parts of South America, east Africa, New Zealand, Ireland, and Hawaii."

301	Naturalized beyond native range	y
	Source(s)	**Notes**
	Iremonger, S. (2002). A Guide to Plants in the Blue Mountains of Jamaica. University of the West Indies Press, Kingston, Jamaica	"introduced and naturalized locally (e.g.; Portland Gap), 1,220 to 1,380 m (4,000 to 4 500 ft). Native of Chile."

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to southern South America; in Hawai'i cultivated and escaping in mesic to wet forest on Kaua'i, Maui, and Hawai'i. First collected on Hawai'i in 1917 (Rock 13045, BISH); however, Degener and Degener (1983) report that it was introduced in 1909 from plants cultivated in California and brought to the Kilauea area on Hawai'i by W. Giffard."
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 7 Jul 2021]	"Naturalized Africa MACARONESIA: Spain [Canarias], Portugal [Azores] EAST TROPICAL AFRICA: Kenya, Tanzania Australasia AUSTRALIA: Australia NEW ZEALAND: New Zealand Europe NORTHERN EUROPE: United Kingdom Pacific NORTH-CENTRAL PACIFIC: United States [Hawaii] Southern America WESTERN SOUTH AMERICA: Bolivia"
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	"Wild strains of F. magellanica are apparently still present in England, and the species has become widely naturalized in parts of Ireland, New Zealand, Hawaii, South America, and eastern and southern Africa."

302	Garden/amenity/disturbance weed	n
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[A disturbance adapted plant with negative environmental impacts] "The shrub establishes mostly in disturbed sites from where it spreads into adjacent vegetation (Muyt, 2001)."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Environmental weed] "The shrub invades moist forests and open woodland, shading out native plants with its dense foliage. The shrub scrambles over other shrubs and small trees, impeding their growth and regeneration and strongly reducing biodiversity."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	y
	Source(s)	**Notes**
	Queensland Government. (2021). Weeds of Australia. Fuchsia magellanica. https://keyserver.lucidcentral.org/weeds. [Accessed 7 Jul 2021]	"Hardy fuchsia (Fuchsia magellanica) is regarded as an environmental weed in Victoria, South Australia, Tasmania and Western Australia. This species has escaped cultivation as a garden plant and is listed as a priority environmental weed by at least one Natural Resource Management region. It is invasive in forests and forest margins, moist open woodlands, riparian areas and disturbed bushland areas in southern Australia."

Qsn #	Question	Answer
	Booy, O., Wade, M. & Roy, H. (2015). Field Guide to Invasive Plants and Animals in Britain. Bloomsbury Publishing, London / New York	"Impact: Potential to displace native species and vector for Fuchsia Gall Mite (Aculops fuchsiae)."
	Macdonald, I., Thébaud, C., Strahm, W., & Strasberg, D. (1991). Effects of Alien Plant Invasions on Native Vegetation Remnants on La Réunion (Mascarene Islands, Indian Ocean). Environmental Conservation, 18(1), 51-61	"The Bebour forest had very dense infestations of Fuchsia magellanica along the main path and tracksides. As this species was present in dense tangles which were radically altering the physiognomy of the vegetation and actually shading out the ground-layer. we cannot agree with Cheke's assertion (1987 b p. 309) that this species is a ' non-pathogenic" invader of these forests. It was not possible to determine how far into the undisturbed forest this infestation extended. However, the discovery of a dense patch (c. 600 ml) of this species on a steep valleyside. well inside the Cilaos forest, indicates that F. magellanica is quite capable of penetrating and transforming undisturbed high-altitude forests."
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"The shrub invades moist forests and open woodland, shading out native plants with its dense foliage. The shrub scrambles over other shrubs and small trees, impeding their growth and regeneration and strongly reducing biodiversity. In Victoria, Australia, the shrub spreads in damp and wet sclerophyll forests (Muyt, 2001). Fuchsia reproduces primarily by seeds, which are dispersed by frugivorous birds and mammals, and also water. Stem layering may sometimes occur. The shrub establishes mostly in disturbed sites from where it spreads into adjacent vegetation (Muyt, 2001). It is not tolerant of frost (Pagter et al., 2008). This is of particular concern on La Réunion Island, where the shrub displaces high altitude forests harbouring endemic species (Tassin, 1999)."

305	Congeneric weed	y
	Source(s)	**Notes**
	Global Invasive Species Database. (2021). Species profile: Fuchsia boliviana. http://www.iucngisd.org/gisd/. [Accessed]	"Fuchsia boliviana is a small tree that develops rapidly. In tropical regions where it has been introduced (such as La Réunion or Hawaii), this plant tends to dominate native plant species. The dense foliage of large stands of Fuchsia boliviana intercept the light limiting the development of native understory species."

401	Produces spines, thorns or burrs	n
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[No evidence] "Small shrubs; stems long, arcuate, 1-2.5 (-4) m long. Leaves in whorls of 3-4 per node or sometimes opposite, ovate to lanceolate, 2.5-6 cm long, 1-2 cm wide, margins serrate, petioles 0.5-1 cm long. Flowers perfect, axillary and pendent, peduncles 3-4.5 cm long; floral tube magenta, 10-13 mm long; sepals magenta, 20-25 mm long; petals dark purple, convolute after anthesis, 10-13 mm long; stamens exserted; filaments 25-30 mm long. Berries ellipsoid, 10-15 mm long"

Qsn #	Question	Answer
402	**Allelopathic**	
	Source(s)	**Notes**
	WRA Specialist. (2021). Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Small shrubs; stems long, arcuate, 1-2.5(-4) m long." [Onagraceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	**Notes**
	Galende, G., Ramilo, E., & Beati, A. (2005). Diet of Huemul deer (Hippocamelus bisulcus) in Nahuel Huapi National Park, Argentina. Studies on Neotropical Fauna and Environment, 40(1), 1-5	"We determined the diet of a small population of Huemul deer (Hippocamelus bisulcus) in Nahuel Huapi National Park, Argentina, using microhistological analysis of fecal samples." ... "Similar results were obtained for autumn in the Niblinto National Reserve in Chile, where huemuls fed on Maytenus magellanica and Fuchsia magellanica, lower altitude species favoring more humid sites (51500 m) (Lopez et al., 2000)."

405	Toxic to animals	n
	Source(s)	**Notes**
	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
	NC State Extension. (2021). Fuchsia magellanica. https://plants.ces.ncsu.edu/plants/fuchsia-magellanica/. [Accessed 8 Jul 2021]	Tagged as non-toxic for horses, non-toxic for dogs and non-toxic for cats

406	Host for recognized pests and pathogens	
	Source(s)	**Notes**
	CABI. (2021). Aculops fuchsiae (Fuchsia gall mite). In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"A. fuchsiae, the fuchsia gall mite, is native to South America. It was first found in California, USA in 1981 where it has spread rapidly, and more recently it has invaded Europe since 2003, and it is a declared quarantine pest in both. It attacks only fuchsia (Fuchsia spp.), but once established it is very difficult to eradicate and impacts can be so severe that some growers in California have given up growing the plants entirely."
	The Royal Horticultural Society. (2021). Fuchsia magellanica var. gracilis - hardy fuchsia. https://www.rhs.org.uk. [Accessed 8 Jul 2021]	"Pests - Under glass, can get glasshouse whitefly, glasshouse red spider mite, aphids, glasshouse leafhopper, thrips and vine weevil; outdoor plants are less troubled by these pests but can also get capsid bug, fuchsia gall mite and caterpillars Diseases - May be affected by fuchsia rust "

Qsn #	Question	Answer
	Booy, O., Wade, M. & Roy, H. (2015). Field Guide to Invasive Plants and Animals in Britain. Bloomsbury Publishing, London / New York	[Host of gall mite that only impacts Fuchsia species] "Impact: Potential to displace native species and vector for Fuchsia Gall Mite (Aculops fuchsiae)."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	**Notes**
	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
	Wagstaff, D.J. (2008). International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[No evidence. Dense thickets and scrambling habit could increase fire risk, but this plant generally grows in moist habitats where fire frequency and risk are presumably low] "The shrub invades moist forests and open woodland, shading out native plants with its dense foliage. The shrub scrambles over other shrubs and small trees, impeding their growth and regeneration and strongly reducing biodiversity. In Victoria, Australia, the shrub spreads in damp and wet sclerophyll forests (Muyt, 2001)."

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	**Notes**
	Morales-Paredes, C., Valdivia, C. E., & Orellana, J. I. (2018). Bird-mediated effect of deforestation on potential seed dispersal does not increase the seed recruitment of Fuchsia magellanica. Trees, 32(1), 245-254.	"In terms of regeneration niche, F. magellanica is a shade-intolerant shrub inhabiting more frequently the forest gaps and also deforested habitats (Lusk et al. 2006)."
	Piper, F. I. (2015). Patterns of carbon storage in relation to shade tolerance in southern South American species. American Journal of Botany, 102(9), 1442-1452	"TABLE 1. Study species and families, shade tolerance category, and characteristics of the sampled individuals (number per species and sampling date, mean seedling height, and mean light environment) in the understory of a cold rainforest and a Mediterranean forest in southern Chile." [Fuchsia magellanica - Shade-tolerance = Intolerant]

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	Tasmanian Department of Primary Industries, Parks, Water and Environment. (2007). Weeds in Your Bush. https://dpipwe.tas.gov.au/Documents/kit3a.pdf. [Accessed 8 Jul 2021]	"Fuchsia is a small to medium-sized shrub with surface roots and red tubular flowers. It is currently a popular garden plant. The seeds are produced in large numbers and are dispersed by birds. It thrives in any soil."
	Ryczkowski, A. (2021). How to Care for Fuchsia magellanica. https://homeguides.sfgate.com/care-fuchsia-magellanica-67229.html. [Accessed 8 Jul 2021]	"Hardy fuchsias can grow well in a range of soil types but will perform best in soil that has a near neutral pH and is well drained with good fertility."

Qsn #	Question	Answer
	The Royal Horticultural Society. (2021). Fuchsia magellanica var. gracilis - hardy fuchsia. https://www.rhs.org.uk. [Accessed 8 Jul 2021]	"Soil - Chalk, Clay, Loam, Sand pH - Acid, Alkaline, Neutral"

411	Climbing or smothering growth habit	y
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Smothering habit] "The shrub scrambles over other shrubs and small trees, impeding their growth and regeneration and strongly reducing biodiversity."

412	Forms dense thickets	y
	Source(s)	**Notes**
	Macdonald, I., Thébaud, C., Strahm, W., & Strasberg, D. (1991). Effects of Alien Plant Invasions on Native Vegetation Remnants on La Réunion (Mascarene Islands, Indian Ocean). Environmental Conservation, 18(1), 51-61	"The Bebour forest had very dense infestations of Fuchsia magellanica along the main path and tracksides. As this species was present in dense tangles which were radically altering the physiognomy of the vegetation and actually shading out the ground-layer. we cannot agree with Cheke's assertion (1987 b p. 309) that this species is a ' non-pathogenic" invader of these forests. It was not possible to determine how far into the undisturbed forest this infestation extended. However, the discovery of a dense patch (c. 600 ml) of this species on a steep valleyside. well inside the Cilaos forest, indicates that F. magellanica is quite capable of penetrating and transforming undisturbed high-altitude forests."
	Queensland Government. (2021). Weeds of Australia. Fuchsia magellanica. https://keyserver.lucidcentral.org/weeds. [Accessed 7 Jul 2021]	[Scrambles over other plants, and also forms thickets] "Hardy fuchsia (Fuchsia magellanica) is most invasive on the La Réunion islands in the Indian Ocean, where it forms dense tangled thickets which shade out native understorey plants and alter the structure of the vegetation. It is capable of penetrating and transforming undisturbed high altitude forests and during a recent study was ranked among the top ten most invasive alien plant species on La Réunion."

501	Aquatic	n
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Terrestrial] "in Hawai'i cultivated and escaping in mesic to wet forest on Kaua'i, Maui, and Hawai'i."

502	Grass	n
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 7 Jul 2021]	Family: Onagraceae Subfamily: Onagroideae Tribe: Circaeeae

Qsn #	Question	Answer
503	**Nitrogen fixing woody plant**	**n**
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 7 Jul 2021]	Family: Onagraceae Subfamily: Onagroideae Tribe: Circaeeae

504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**n**
	Source(s)	**Notes**
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	"Erect to semiscandent shrubs 0.5-3(-5) m tall. Branchlets tan to reddish, glabrous or occasionally sparsely strigillose with appressed hairs 0.3-0.4 mm long; older stems with tan, flaky bark, up to 25 cm diam. at the base."

601	**Evidence of substantial reproductive failure in native habitat**	**n**
	Source(s)	**Notes**
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	[No evidence] "In moist scrub and along forest margins or in clearings, usually near water. Throughout the central and southern Andes of Chile and Argentina and in coastal Chile; from Valparaiso, Chile (32°50'S) and Neuquen, Argentina (39°30'S) to southern Tierra del Fuego (55°S). From sea level (throughout the range) to 1,750 m in central Chile near Santiago. Flowering principally from December to March, occasionally as early as October and as late as April. Widely cultivated throughout the world and naturalized in parts of South America, east Africa, New Zealand, Ireland, and Hawaii."

602	**Produces viable seed**	**y**
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Fuchsia reproduces primarily by seeds, which are dispersed by frugivorous birds and mammals, and also water."
	Traveset, A., Willson, M. F., & Sabag, C. (1998). Effect of nectar-robbing birds on fruit set of Fuchsia magellanica in Tierra del Fuego: a disrupted mutualism. Functional Ecology, 12(3), 459-464	"The low frequency of animal pollinators observed in the populations of F. magellanica in Tierra del Fuego, together with the high fruit set found in the intact flowers, suggest that a large fraction of the seeds, presumably much larger than the 14% found by Riveros (1991) further north, are the result of selfing."

603	**Hybridizes naturally**	**y**
	Source(s)	**Notes**

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Fuchsia hybrida Hort. ex Siebold & Voss., distinguished from F. magellanica by the longer floral tube 1-2 cm long and sepals 2.5-3 cm long, is a variable garden hybrid involving F. magellanica as one of the parents. It is cultivated in Hawai'i or sometimes found as an escape from cultivation on the island of Hawai'i."
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	"Natural hybridization among sympatric taxa of sect. Quelusia appears to occur readily, as there are no major differences in pollinators, flowering time, or habitat in mixed populations." ... "F. magellanica x F. lycioides ... The ranges of the two species barely overlap in the hills around Valparaiso, where several natural hybrids were collected in the early 1800s. ... Hybrids of these two species appear quite often in cultivation and have sometimes been confused with the true F. lycioides, as in the cytological study of Chaudhuri (1956)."

604	Self-compatible or apomictic	y
	Source(s)	**Notes**
	Traveset, A., Willson, M. F., & Sabag, C. (1998). Effect of nectar-robbing birds on fruit set of Fuchsia magellanica in Tierra del Fuego: a disrupted mutualism. Functional Ecology, 12(3), 459-464	"Fuchsia magellanica is self-compatible but its potential for autogamy has been reported to be low (14%) in southern continental Chile (Riveros 1991). The flowers are open an average of 6 days (n = 14 flowers) and they are protogynous; the stigma is receptive (sticky) as soon as the flower opens and remains so even after the anthers have dehisced. The eight stamens are of two lengths; four extend slightly beyond the corolla and four are much longer, sometimes as long as the style. Anthers and stigma occasionally contact each other and are usually only several mm apart; delayed selfing may actually be a mechanism to ensure fertilization in case flowers are not visited by pollinators." ... "The low frequency of animal pollinators observed in the populations of F. magellanica in Tierra del Fuego, together with the high fruit set found in the intact flowers, suggest that a large fraction of the seeds, presumably much larger than the 14% found by Riveros (1991) further north, are the result of selfing."

605	Requires specialist pollinators	n
	Source(s)	**Notes**
	Traveset, A., Willson, M. F., & Sabag, C. (1998). Effect of nectar-robbing birds on fruit set of Fuchsia magellanica in Tierra del Fuego: a disrupted mutualism. Functional Ecology, 12(3), 459-464	[Capable of selfing in the absence of bird or insect pollinators] "The low frequency of animal pollinators observed in the populations of F. magellanica in Tierra del Fuego, together with the high fruit set found in the intact flowers, suggest that a large fraction of the seeds, presumably much larger than the 14% found by Riveros (1991) further north, are the result of selfing."
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	[Visited by bumblebees and hummingbirds] "Hauman-Merck (1912) described the visits of Bombus chilensis to F. magellanica in southern Chile, and thought it to be a more important visitor there than hummingbirds. Both of these bee species hang from the anthers to collect pollen and may attempt to reach the nectary at the base of the tube; Bombus, especially, is able to make contact with the stigma and acts as an effective pollinator."

Qsn #	Question	Answer
606	**Reproduction by vegetative fragmentation**	**y**
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Fuchsia reproduces primarily by seeds, which are dispersed by frugivorous birds and mammals, and also water. Stem layering may sometimes occur."
	Booy, O., Wade, M. & Roy, H. (2015). Field Guide to Invasive Plants and Animals in Britain. Bloomsbury Publishing, London / New York	"Widely found in western parts of Scotland, Wales and England. Reproduces by suckering, rarely self-seeds."

607	**Minimum generative time (years)**	
	Source(s)	**Notes**
	Shoot Gardening. (2021). Fuchsia magellanica 'Versicolor' (Hardy fuchsia 'Versicolor'). https://www.shootgardening.co.uk. [Accessed 8 Jul 2021]	"2-5 years To maturity"
	Watsons Nuseries. (2021). Fuchsia magellanica (Magellan Fuchsia). http://www.watsonsnurseries.co.uk/product_308.htm. [Accessed 8 Jul 2021]	"5-10 years to maturity."
	NC State Extension. (2021). Fuchsia magellanica. https://plants.ces.ncsu.edu/plants/fuchsia-magellanica/. [Accessed 8 Jul 2021]	"Growth Rate: Medium"
	WRA Specialist. (2021). Personal Communication	Unclear if time to maturity in the cited websites refers to reproductive maturity or full growth size

701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	**y**
	Source(s)	**Notes**
	Nursery & Garden Industry Australia. (2009). Grow Me Instead - A Guide for Gardeners in Tasmania. http://www.growmeinstead.com.au/. [Accessed 8 Jul 2021]	"Broken stems can easily root in fertile soils from dumped garden waste."

702	**Propagules dispersed intentionally by people**	**y**
	Source(s)	**Notes**
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai‘i Press and Bishop Museum Press, Honolulu, HI.	"Native to southern South America; in Hawai'i cultivated and escaping in mesic to wet forest on Kaua'i, Maui, and Hawai'i. First collected on Hawai'i in 1917 (Rock 13045, BISH); however, Degener and Degener (1983) report that it was introduced in 1909 from plants cultivated in California and brought to the Kilauea area on Hawai'i by W. Giffard"
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	"Widely cultivated throughout the world and naturalized in parts of South America, east Africa, New Zealand, Ireland, and Hawaii."

703	**Propagules likely to disperse as a produce contaminant**	**n**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Dispersed by: Humans, Animals, Escapee"

704	Propagules adapted to wind dispersal	n
	Source(s)	**Notes**
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	"Berry narrowly oblong, (10-)15-22 mm long, 4-7 mm thick; seeds irregularly oblong-triangular, 1.0-1.4 mm long, 0.7-0.9 mm wide."
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Fuchsia reproduces primarily by seeds, which are dispersed by frugivorous birds and mammals, and also water."

705	Propagules water dispersed	y
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Fuchsia reproduces primarily by seeds, which are dispersed by frugivorous birds and mammals, and also water."
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	"In moist scrub and along forest margins or in clearings, usually near water." [Adapted for frugivory, but proximity to water suggests secondary dispersal by water likely occurs]

706	Propagules bird dispersed	y
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Fuchsia reproduces primarily by seeds, which are dispersed by frugivorous birds and mammals, and also water."
	Morales-Paredes, C., Valdivia, C. E., & Orellana, J. I. (2018). Bird-mediated effect of deforestation on potential seed dispersal does not increase the seed recruitment of Fuchsia magellanica. Trees, 32(1), 245-254.	"In the study area, only a total of five species of frugivorous were recorded for F. magellanica, probably due to the small sampling effort. The lizard Liolaemus pictus (Tropiduridae) was the only terrestrial animal, while the flying animals corresponded to the birds Curaeus curaeus (Icteridae), Elaenia albiceps (Tyrannidae), Phrygilus patagonicus (Thraupidae) and Turdus falcklandii (Turdidae)."
	Armesto, J. J., Rozzi, R, Miranda, P., & Sabag, C. (1987). Plant/frugivore interactions in South American temperate forests. Revista Chilena de Historia Natural, 60(2), 321-336	"Table 5 Characteristics of fruits of bird- dispersed plants in the forest of Chiloe." [Includes Fuchsia magellanica]

707	Propagules dispersed by other animals (externally)	n
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Fuchsia reproduces primarily by seeds, which are dispersed by frugivorous birds and mammals, and also water." [Dispersed internally. No means of external attachment]

708	Propagules survive passage through the gut	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Fuchsia reproduces primarily by seeds, which are dispersed by frugivorous birds and mammals, and also water."
	Nursery & Garden Industry Australia. (2009). Grow Me Instead - A Guide for Gardeners in Tasmania. http://www.growmeinstead.com.au/. [Accessed]	"Seeds are spread by birds in their droppings and in water."
	Armesto, J. J., Rozzi, R, Miranda, P., & Sabag, C. (1987). Plant/frugivore interactions in South American temperate forests. Revista Chilena de Historia Natural, 60(2), 321-336	"Table 3 Fruit-eating mammals of Chilean temperate forests." [Includes Fuchsia magellanica fruit consumed by Pudu pudu (Cervidae)]

801	Prolific seed production (>1000/m2)	
	Source(s)	**Notes**
	Morales-Paredes, C., Valdivia, C. E., & Orellana, J. I. (2018). Bird-mediated effect of deforestation on potential seed dispersal does not increase the seed recruitment of Fuchsia magellanica. Trees, 32(1), 245-254.	"Table 2 Fruit traits (size, shape, color, sugar concentration, and seed crop) of F. magellanica from plants growing in temperate rainforests of Chile and frugivory and potential seed dispersal by terrestrial (i.e., lizards) and flying animals (i.e., birds), on the fleshy fruited shrub F. magellanica in the temperate rainforest of Chile" [Fruits reported to contain 123.5 ± 4.7 to 197.4 ± 17.6 seeds/fruit]

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	**Notes**
	Royal Botanic Gardens Kew. (2021) Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ . [Accessed 8 Jul 2021]	[Longevity in field conditions unknown] "Storage Behaviour: Orthodox Storage Conditions: 94 % viability following drying to mc's in equilibrium with 15 % RH and freezing for approx. 1 year at -20°C at RBG Kew, WP"

803	Well controlled by herbicides	y
	Source(s)	**Notes**
	Gowans, M. (2021). How to Kill a Fuschia Bush. http://homeguides.sfgate.com/kill-fuschia-bush-73769.html. [Accessed 8 Jul 2021]	"Chemical Control 1. Cut the branches or stems off larger fuchsia bushes using loppers or gardening shears, leaving only the main stem. Cut the main stem to about 3 inches above the soil. 2. Pour undiluted 2,4-D, glyphosate or triclopyr herbicide in a disposable container. Dip a clean foam paintbrush in the undiluted herbicide and paint the cut stump with the saturated paintbrush. For best results, apply the herbicide immediately after cutting the fuchsia bush. If more than a few minutes pass, cut about 1/2 inch of the fuchsia bush stump before applying the herbicide. 3. Check the fuchsia bush stump regularly. Cut new growth with gardening shears and paint the cut with herbicide in the same manner as before."
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Control - Seedlings and small plants can be hand-pulled or dug out. Roots should be dug out to prevent regrowth. Larger shrubs are best cut and the cut stumps treated with herbicide. Slashing plants back to the ground and spraying regrowth when it reaches a height of 20–30 cm gives good control of larger infestations (Muyt, 2001)."

Qsn #	Question	Answer
	Tasmanian Department of Primary Industries, Parks, Water and Environment. (2007). Weeds in Your Bush. https://dpipwe.tas.gov.au/Documents/kit3a.pdf. [Accessed 8 Jul 2021]	Herbicides: The table below shows the herbicides suitable for control of fuchsias. Type of application - Foliar spray Herbicide - Glyphosate Commercial products (concentration of active ingredient) - Glyphosate 360® (360 g/L) Application rate - All 10 ml/L Type of application -Cut and paint Herbicide - Glyphosate Commercial products (concentration of active ingredient) - 360 g/L products as above Application rate - 200 ml/L

804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	**y**
	Source(s)	**Notes**
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Tolerates cutting, and will regrow unless treated with herbicide] "Roots should be dug out to prevent regrowth. Larger shrubs are best cut and the cut stumps treated with herbicide. Slashing plants back to the ground and spraying regrowth when it reaches a height of 20– 30 cm gives good control of larger infestations"

805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**
	Gardner, D. E., & Davis, C. J. (1982). The prospects for biological control of nonnative plants in Hawaiian national parks.Technical Report 45. Cooperative National Park Resources Studies, University of Hawaii, Honolulu	[Greenhouse tests of a rust fungus were not replicated in outdoor conditions] "Personnel concerned with culture of plants in greenhouses are commonly aware of particular disease, insect, or mite problems which are serious either inside or outside of greenhouses but are not significant in the opposite situation. As an illustration, the rust fungus Pucciniastrum epilobii Otth. was first reported by the senior author to be present in Hawaii, where it attacked leaves of Fuchsia hybrida Hort. ex Vilm., causing defoliation {60). In an effort to evaluate this rust as a possible biocontrol agent for F. magellanica, a species which occurs as an exotic in HAVO, it was found that plants of F. magellanica grown from cuttings in the HAVO greenhouse could be successfully infected through artificial inoculation methods. However, inoculation of plants of the same species in a nearby outside location did not result in infection {unpublished results, DG). Thus, although preliminary screening in an enclosed facility is necessary to determine indications of pathogenicity or feeding, it does not provide absolute assurance of the host limitations of the agents in question."

Summary of Risk Traits:

High Risk / Undesirable Traits
• Broad elevation range and climate suitability
• Naturalized in several locations worldwide, including the Hawaiian Islands of Kauai, Maui, and Hawaii
• A disturbance-adapted shrub with negative environmental impacts, particularly La Réunion (Mascarene Islands, Indian Ocean) and Australia
• Other Fuchsia species are invasive.
• Tolerates many soil types.
• Scrambles over other shrubs and small trees, impeding their growth.
• Forms dense thickets.
• Reproduces by seeds, and vegetatively by suckering and stem layering.
• Hybridizes with other Fuchsia species.
• Self-compatible, capable of producing seeds from self-pollination.
• Seeds dispersed by birds, other frugivorous animals, water, and intentionally by people.
• Stem fragments spread by water and in garden waste.
• Able to resprout after cutting unless treated with herbicide.

Low Risk Traits
• Unarmed (no spines, thorns, or burrs)
• Palatable to browsing animals.
• Non-toxic
• Shade intolerant (dense shade may limit spread)
• Herbicides may provide effective control.