Taxon: Fuchsia boliviana **Family:** Onagraceae

Common Name(s): Bolivian fuchsia **Synonym(s):** Fuchsia boliviana var. luxurians I. M. [illegible]
Fuchsia cuspidata Fawc. & Rendle

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 20 Jul 2015

WRA Score: 15.0 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Naturalized, Environmental Weed, Spreads Vegetatively, Self-Compatible, 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		
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	y=1, n=0	n
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)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
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		
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	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		
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		
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**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[No evidence of domestication] "Since cultivation of this species in the Cuzco area dates back to the Incas, it is reasonable to suppose that robust, long-flowered plants were selected for cultivation by the local inhabitants, and these were later discovered by European visitors who sent seeds abroad to give rise to many of the naturalizec populations known today. Due to the predominant autogamy of this species, populations with different floral tube lengths or with differences in the length and density of pubescence can easily be maintained. The only cultivated or naturalized populations with short floral tubes 4 cm long or less are from Portugal (Rhodes 37-64-126, BH) and some from India. Crosses between longtubed plants from Colonia Tovar, Venezuela, and short-tubed plants from Dept. La Paz, Bolivia, were made at Missouri Botanical Garden in 1979. These have given rise to normal, vigorous plants, with intermediate flower size."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. 2015. Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. 2015. 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**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Distribution: The probable native range extends from northern Argentina to southern Peru, undoubtedly naturalized elsewhere outside South America and in Colombia and Venezuela; cloud forest shrubs in moist thickets; (600-)1,000-3,000 m (Fig. 65)."

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	

203	**Broad climate suitability (environmental versatility)**	**y**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Breedlove, D. E., Berry, P. E., & Raven, P. H. (1982). The Mexican and Central American species of Fuchsia (Onagraceae) except for Sect. Encliandra. Annals of the Missouri Botanical Garden, 69(1): 209-234	"...it is tolerant of much drier and harsher conditions than most species in the genus. For these reasons, F. boliviana is a frequently cultivated and escaped shrub in many villages throughout Central America and Mexico."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[Elevation range exceeds 1000 m] "Distribution: The probable native range extends from northern Argentina to southern Peru, undoubtedly naturalized elsewhere outside South America and in Colombia and Venezuela; cloud forest shrubs in moist thickets; (600 -)1,000-3,000 m" ... "F. boliviana has broader ecological tolerances than most species in the section and can survive short periods of drought and full sunlight."

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 from northern Argentina to southern Peru, often cultivated and widely naturalized; in Hawai'i cultivated in the Koke'e area, Kaua'i, and now becoming naturalized there in diverse mesic forest. First collected in 1960 (Degener & Degener 28184, BISH)."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	**Notes**
	Webb, C. J., Sykes, W. R., & Garnock-Jones, P. J. 1988. Flora of New Zealand Volume IV. Botany Division, DSIR, Christchurch, New Zealand	"F. boliviana is commonly cultivated in warmer parts of N.Z., especially N. of the Volcanic Plateau. It is represented in N.Z. by var. luxurians I. M. Johnston, which is characterised by the longer floral tube and sepals. In cultivation plants may have white fls."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"It has been widely cultivated and naturalized in many countries of the world since the mid- 1800s, but has long been confused in the literature with F. corymbiflora. The true F. corymbiflora has apparently never been cultivated and is a localized endemic in central Peru that has much finer pubescence than F. boliviana."
	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.	"often cultivated and widely naturalized;"

301	Naturalized beyond native range	y
	Source(s)	**Notes**
	Breedlove, D. E., Berry, P. E., & Raven, P. H. (1982). The Mexican and Central American species of Fuchsia (Onagraceae) except for Sect. Encliandra. Annals of the Missouri Botanical Garden, 69(1): 209-234	"Escaped from cultivation and locally established on moist slopes from Puebla south to Costa Rica, always near habitations. (Native to southern Peru, Bolivia, and northern Argentina.) Flowering throughout the year." ... "Fuchsia boliviana is perhaps the most widely naturalized species in the genus, at least in tropical and subtropical areas. Outside of its probable native range of southern Peru to northern Argentina, it is also naturalized in Colombia, Venezuela, Jamaica, Hawaii, Java, Reunion, India, and a number of other countries"

Qsn #	Question	Answer
	Steenis, C.G.G.J. van (ed.). 1977. Flora Malesiana. Series I, Spermatophyta: Flowering plants. Volume 8, part 2. Revisions. Sijthoff & Noordhoff International Publishers, Leiden, Netherlands	"Locally cultivated and perhaps established in the mountains of West and East Java (Mts Malabar and Tengger) between 1500 and 2000 m."
	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 from northern Argentina to southern Peru, often cultivated and widely naturalized; in Hawai'i cultivated in the Koke'e area, Kaua'i, and now becoming naturalized there in diverse mesic forest. First collected in 1960 (Degener & Degener 28184, BISH)."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"The only widely naturalized species in the section, the arborescent F. boliviana, is tolerant of open habitats with moderate moisture stress, occupying a wider range of climatic conditions than most other species in the group."
	Webb, C. J., Sykes, W. R., & Garnock-Jones, P. J. 1988. Flora of New Zealand Volume IV. Botany Division, DSIR, Christchurch, New Zealand	[Naturalized in New Zealand] "N.: Waitangi Reserve (Bay of Islands), Auckland City and probably Tauranga; S.: Nelson. Scrub and much modified forest around settlements"

302	Garden/amenity/disturbance weed	n
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

303	Agricultural/forestry/horticultural weed	n
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

304	Environmental weed	y
	Source(s)	**Notes**
	Ministry for Primary Industries. 2009. Bolivian Fuchsia - Fuchsia boliviana. Wellington, NZ. http://www.biosecurity.govt.nz/pests/bolivian-fuchsia. [Accessed 17 Jul 2015]	"Bolivian fuchsia forms dense tall thickets of up to 2 m. It establishes along track and stream sides, along forest margins, and in disturbed and intact forest, and is very shade-tolerant. It is also able to disperse large distances from cultivated and naturalised individuals via bird dispersal."
	Tassin, J., Triolo, J., & Lavergne, C. 2007. Ornamental plant invasions in mountain forests of Réunion (Mascarene Archipelago): a status review and management directions. African Journal of Ecology, 45(3): 444-447	"Table 1 List of the ornamental species threatening mountain forests on Reunion. Invasiveness status is evaluated as highly invasive (+++)," [Fuchsia boliviana = highly invasive (+++)]
	Weedbusters. 2015. Fuchsia boliviana. http://www.weedbusters.co.nz/weed-information/fuchsia-boliviana/59/. [Accessed 17 Jul 2015]	"Why is it weedy? Forms dense thickets up to 2m tall and is shade-tolerant." ... "What damage does it do? Shades out smaller plants and seedlings, preventing native plants establishing."

305	Congeneric weed	y
	Source(s)	**Notes**

Qsn #	Question	Answer
	Global Invasive Species Database. 2010. Fuchsia magellanica. http://www.issg.org/database/species/ecology.asp?si=1256. [Accessed 17 Jul 2015]	"Fuchsia magellanica is a shrub with many horticultural varieties. In tropical regions where it has been introduced (such as La Réunion and Hawaii), this rapidly developing plant tends to dominate native plant species. The very dense foliage of Fuchsia magellanica thickets intercept light, thus limiting the development of native understorey plants."
	Queensland Government. 2011. Weeds of Australia - Hardy fuchsia Fuchsia magellanica. http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Fuchsia_magellanica.htm. [Accessed 17 Jul 2015]	"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."

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] "Erect bushy shrubs or small trees 2-4.5 (-6) m tall; older stems usually hollow. Leaves opposite or ternate, sometimes alternate near uppermost branching nodes, narrowly to broadly elliptic or ovate, 5- 20(-23) cm long, 3-12(-15) cm wide, upper surface puberulent to glabrate, lower surface puberulent, sometimes densely so, margins glandular denticulate, petioles 2- 5(-7) cm long."

402	Allelopathic	
	Source(s)	**Notes**
	WRA Specialist. 2015. Personal Communication	Unknown

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.	"Erect bushy shrubs or small trees 2-4.5 (-6) m tall; older stems usually hollow." [No evidence. Onagraceae]

404	Unpalatable to grazing animals	
	Source(s)	**Notes**
	Plants for a Future. 2015. Fuchsia boliviana. http://www.pfaf.org/user/Plant.aspx?LatinName=Fuchsia+boliviana. [Accessed 17 Jul 2015]	"Plants seem to be immune to the predations of rabbits[233]."

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

Qsn #	Question	Answer
406	**Host for recognized pests and pathogens**	
	Source(s)	**Notes**
	CABI. 2015. 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."
	Roggero, P., Ciuffo, M., & Lenzi, R. (2000). Natural infection by Cucumber mosaic virus (Cucumovirus; Bromoviridae) in Fuchsia boliviana Carr and the insusceptibility of other Fuchsia species and hybrids to the virus. Plant Pathology, 49(6): 802-802	"Only the carlavirus Fuchsia latent virus (Dellavalle et al., 1996) and the tospovirus tomato spotted wilt virus (Tehrani et al., 1990; Louro, 1996) have been reported to occur naturally in some Fuchsia spp. and hybrids. In May 1999, some plants of F. boliviana in a private garden on the Italian Riviera close to Sanremo had leaves with a severe mosaic." ... "Our field observations and experimental tests apparently indicate that only F. boliviana is susceptible to CMV. This suggests that this species should not be used for breeding to prevent accidental introduction of susceptibility into new hybrids."
	Nickel, E. 2007. Pick of the Week: Fuchsia boliviana. http://www.sfgate.com/homeandgarden/article/Pick-of-the-Week-Fuchsia-boliviana-2544052.php. [Accessed 20 Jul 2015]	"Pests: Like other fuchsias, F. boliviana is prone to spider mites, scale, whiteflies, aphids and root rot."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	**Notes**
	Plants for a Future. 2015. Fuchsia boliviana. http://www.pfaf.org/user/Plant.aspx?LatinName=Fuchsia+boliviana. [Accessed 17 Jul 2015]	[Edible fruit] "Known Hazards: None known" ... "Fruit - raw[48, 177, 200]. A juicy berry[K], it has a sweetish tast [97, 183]. A pleasant flavour[188]. The fruit can be up to 25mm long[200]."
	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**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[Unlikely. Occurs in cloud forest habitat] "The native range of F. boliviana appears to be centered in cloud forest on the eastern slopes of the Andes in southern Peru and Bolivia, possibly extending into northern Argentina."

Qsn #	Question	Answer
409	**Is a shade tolerant plant at some stage of its life cycle**	**y**
	Source(s)	**Notes**
	Plants for a Future. 2015. Fuchsia boliviana. http://www.pfaf.org/user/Plant.aspx?LatinName=Fuchsia+boliviana. [Accessed 17 Jul 2015]	" It can grow in semi-shade (light woodland) or no shade."
	Weedbusters. 2015. Fuchsia boliviana. http://www.weedbusters.co.nz/weed-information/fuchsia-boliviana/59/. [Accessed 17 Jul 2015]	"Why is it weedy? 'Forms dense thickets up to 2m tall and is shade-tolerant."

410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**y**
	Source(s)	**Notes**
	Backyard Gardener. 2015. Fuchsia boliviana (Bolivian Fuchsia). http://www.backyardgardener.com/plantname/pd_a5bf.html. [Accessed 20 Jul 2015]	"pH Range: 5.5 to 7 Soil Range: Sandy Loam to Clay Loam"
	Plants for a Future. 2015. Fuchsia boliviana. http://www.pfaf.org/user/Plant.aspx?LatinName=Fuchsia+boliviana. [Accessed 20 Jul 2015]	"Succeeds in any fertile well-drained circum-neutral soil[200]"

411	**Climbing or smothering growth habit**	**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.	"Erect bushy shrubs or small trees 2-4.5 (-6) m tall; older stems usually hollow."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Unlike most species of sect. Fuchsia, which are often scandent with weak stems and branches, Fuchsia boliviana is sometimes arborescent and almost always self-supporting."

412	**Forms dense thickets**	**y**
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Trailing stems or broken stem pieces of Fuchsia root readily in the moist humus that is usually found in thickets where most species of the genus occur. Large colonies of F. boliviana that reproduce mainly in this manner were seen in Venezuela (naturalized) and in Bolivia (native). The same process also gives rise in other species to dense thickets of plants that probably arose from a single individual."

501	**Aquatic**	**n**
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[Terrestrial shrub to small tree] "cloud forest shrubs in moist thickets"

502	**Grass**	**n**

Qsn #	Question	Answer
	Source(s)	**Notes**
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/. [Accessed 16 Jul 2015]	"Family: Onagraceae subfamily: Onagroideae tribe: Circaeeae"

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/. [Accessed 16 Jul 2015]	["Family: Onagraceae subfamily: Onagroideae tribe: Circaeeae" [No evidence]

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Erect bushy shrubs or small trees 2-4.5(-6) m tall with arching-pendulous branches."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[No evidence] "The native range of F. boliviana appears to be centered in cloud forest on the eastern slopes of the Andes in southern Peru and Bolivia, possibly extending into northern Argentina. This conclusion is based on historical information as well as an analysis of the habitats and present-day distribution of the species. The only areas where F. boliviana can be said to form an integral part of relatively undisturbed tracts of forest is in southern Peru and Bolivia. Elsewhere, this species is found only close to towns, habitations, or heavily disturbed areas, as is typical of adventives or plants escaped from cultivation. Even in southern Peru, many collections are from cultivated or escaped plants. In Venezuela, the only populations of this species are found in the Cordillera de la Costa, where no other native Fuchsia occurs."

Qsn #	Question	Answer
602	**Produces viable seed**	**y**
	Source(s)	**Notes**
	Plants for a Future. 2015. Fuchsia boliviana. http://www.pfaf.org/user/Plant.aspx?LatinName=Fuchsia+boliviana. [Accessed 17 Jul 2015]	"Propagation. Seed - best sown as soon as it is ripe[200] though it can also be sown in the spring[1]."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"seeds tan, 1.3-2 mm long, 0.5-1 mm wide."

603	Hybridizes naturally	
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"It is known to grow sympatrically with F. sanctae-rosae in Peru and Bolivia, but no hybrids between these two species have been detected."
	Berry, P. E. (1989). A systematic revision of Fuchsia sect. Quelusia (Onagraceae). Annals of the Missouri Botanical Garden, 76(2): 532-584	[Possibly used in artificial hybridization] "Interspecific crosses. Interspecific hybridization among members of sect. Quelusia must have begun in the mid-1820s..." ... "Fuchsia boliviana, a member of sect. Fuchsia from South America, may also have been used in the early crosses with selections of sect. Quelusia (J. Wright, pers. comm.)."

604	Self-compatible or apomictic	y
	Source(s)	**Notes**
	Breedlove, D. E., Berry, P. E., & Raven, P. H. (1982). The Mexican and Central American species of Fuchsia (Onagraceae) except for Sect. Encliandra. Annals of the Missouri Botanical Garden, 69(1): 209-234	"A single introduced plant can give rise to extensive local populations, because it self-pollinates very effectively and also reproduces vegetatively by stem shoots."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Controlled crosses in both native and naturalized populations of F. boliviana show that this species is self-compatible and largely autogamous. The high degree of autogamy is probably exceptional in the section and undoubtedly helps to account for the widely naturalized distribution of F. boliviana at present. In this species, protogyny is very poorly developed, and the anthers and stigma are in close contact; naturalized populations at El Junquito, Venezuela, were found to self-pollinate in bud."

605	Requires specialist pollinators	n
	Source(s)	**Notes**

Qsn #	Question	Answer
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[Adapted for bird pollination, but not required] "Naturalized populations of F. boliviana were observed over a several day period in March 1979, at El Junquito and Colonia Tovar, Venezuela. Two different populations were aggressively defended and visited throughout the day by the long tailed sylph, Aglaiocercus kingi. None of the visits were legitimate pollinations, however, because the hummingbirdc onsistently pierced the base of the tube and robbed the flowers of their nectar. At higher elevations in the Colonia Tovar, the same species of Fuchsia was visited by the booted racket tail, Ocreatus underwoodii, which appeared to be making legitimate visits without piercing the tube." ... "As discussed in the section on reproductive biology, many populations of F. boliviana are largely autogamous. Populations from Venezuela and greenhouse- raised progeny from Bolivia both produced fully fertile fruits when isolated from pollinators. The unusually high degree of autogamy in this species is due to the close proximity of the stigma to the upper staminal whorl in many populations and to the loss or very slight degree of protogyny."

606	Reproduction by vegetative fragmentation	y
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Trailing stems or broken stem pieces of Fuchsia root readily in the moist humus that is usually found in thickets where most species of the genus occur. Large colonies of F. boliviana that reproduce mainly in this manner were seen in Venezuela (naturalized) and in Bolivia (native). The same process also gives rise in other species to dense thickets of plants that probably arose from a single individual." ... "In addition to autogamy, vegetative reproduction is common in F. boliviana, occurring mostly by sucker growth or rooting from broken or cut stems."

607	Minimum generative time (years)	
	Source(s)	**Notes**
	Useful Tropical Plants Database. 2015. Fuchsia boliviana. http://tropical.theferns.info/viewtropical.php?id=Fuchsia+boliviana. [Accessed 20 Jul 2015]	"Growth Rate: Fast" [Time to maturity unknown, but may be able to reproduce vegetatively prior to sexual maturity]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Berry cylindrical, 10-26 mm long, 8-14 mm thick, dark purple, strigose, comestible; seeds tan, 1.3-2 mm long, 0.5-1 mm wide." [No evidence. Fleshy-fruited and adapted for bird dispersal. Seeds lack means of external attachment]

702	Propagules dispersed intentionally by people	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"It has been widely cultivated and naturalized in many countries of the world since the mid- 1800s, but has long been confused in the literature with F. corymbiflora. The true F. corymbiflora has apparently never been cultivated and is a localized endemic in central Peru that has much finer pubescence than F. boliviana."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	**Notes**
	Weedbusters. 2015. Fuchsia boliviana. http://www.weedbusters.co.nz/weed-information/fuchsia-boliviana/59/. [Accessed 20 Jul 2015]	"How does it spread? Birds spread the seeds long distances."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[No evidence] "Berry cylindrical, 10-26 mm long, 8-14 mm thick, dark purple, strigose, comestible; seeds tan, 1.3-2 mm long, 0.5-1 mm wide."

704	Propagules adapted to wind dispersal	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.	"Berries cylindrical, 10-26 mm long."

705	Propagules water dispersed	
	Source(s)	**Notes**
	Weedbusters. 2015. Fuchsia boliviana. http://www.weedbusters.co.nz/weed-information/fuchsia-boliviana/59/. [Accessed 17 Jul 2015]	[Adapted for bird dispersal, but water might secondarily disperse seeds in riparian areas] "Which habitats is it likely to invade? Forests and their margins, scrub, riparian areas and open wasteland."

706	Propagules bird dispersed	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.	"Berries cylindrical, 10-26 mm long."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Berry cylindrical, 10-26 mm long, 8-14 mm thick, dark purple, strigose, comestible; seeds tan, 1.3-2 mm long, 0.5-1 mm wide."
	Weedbusters. 2015. Fuchsia boliviana. http://www.weedbusters.co.nz/weed-information/fuchsia-boliviana/59/. [Accessed 17 Jul 2015]	"How does it spread? Birds spread the seeds long distances."

Qsn #	Question	Answer
707	**Propagules dispersed by other animals (externally)**	**n**
	Source(s)	**Notes**
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	"Berry cylindrical, 10-26 mm long, 8-14 mm thick, dark purple, strigose, comestible; seeds tan, 1.3-2 mm long, 0.5-1 mm wide." [Adapted for frugivory. No means of external attachment]

708	**Propagules survive passage through the gut**	**y**
	Source(s)	**Notes**
	Weedbusters. 2015. Fuchsia boliviana. http://www.weedbusters.co.nz/weed-information/fuchsia-boliviana/59/. [Accessed 20 Jul 2015]	[Presumably survives passage through guts of birds] "How does it spread? Birds spread the seeds long distances."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[Presumably Yes] "Berry cylindrical, 10-26 mm long, 8-14 mm thick, dark purple, strigose, comestible; seeds tan, 1.3-2 mm long, 0.5-1 mm wide."

801	**Prolific seed production (>1000/m2)**	
	Source(s)	**Notes**
	Breedlove, D. E., Berry, P. E., & Raven, P. H. (1982). The Mexican and Central American species of Fuchsia (Onagraceae) except for Sect. Encliandra. Annals of the Missouri Botanical Garden, 69(1): 209-234	"Berry ellipsoid to cylindric, 10-25 mm long, 8-14 mm thick, dark purple, comestible; seeds tan, 1.5-2.0 mm long, 0.5-1.0 mm thick"
	WRA Specialist. 2015. Personal Communication	Unknown

802	**Evidence that a persistent propagule bank is formed (>1 yr)**	
	Source(s)	**Notes**
	Royal Botanic Gardens Kew. 2008. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/. [Accessed 20 Jul 2015]	[Unknown for F. boliviana] "Storage Behaviour: Orthodox? Storage Conditions: Seeds maintained for 2 years in commercial storage conditions (Priestley, 1986)"
	Fountain, D. W., & Outred, H. A. 1991. Germination requirements of New Zealand native plants: a review. New Zealand Journal of Botany, 29(3): 311-316	[Unknown, but Fuchsia excorticate may produce a long lived seed bank] "In addition, Ripogonum scandens (Macmillan 1972), Fuchsia excorticata, Aristotelia serrata, and Hoheria populnea have been listed in a pamphlet produced by the New Zealand Department of Conservation (Anon. H.D.), as being intolerant of dryness. R.M. Greenwood (pers. comm.), however, has evidence that Fuchsia seed may survive for 20 or more years in a seed bank at Keebles Bush (Manawatu) where no seed source has been known for longer than that time, and remain viable."

803	**Well controlled by herbicides**	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Gowans, M. 2015. How to Kill a Fuschia Bush. http://homeguides.sfgate.com/kill-fuschia-bush-73769.html. [Accessed 20 Jul 2015]	[Control of Fuchsia magellanica described. Unknown for F. boliviana] "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."

804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	
	Source(s)	**Notes**
	Breedlove, D. E., Berry, P. E., & Raven, P. H. (1982). The Mexican and Central American species of Fuchsia (Onagraceae) except for Sect. Encliandra. Annals of the Missouri Botanical Garden, 69(1): 209-234	[May be able to resprout after cutting] "A single introduced plant can give rise to extensive local populations, because it self-pollinates very effectively and also reproduces vegetatively by stem shoots."
	Berry, P. E. (1982). The systematics and evolution of Fuchsia sect. Fuchsia (Onagraceae). Annals of the Missouri Botanical Garden, 69(1): 1-198	[Reproduces vegetatively. Suggests ability to resprout after cutting] "In addition to autogamy, vegetative reproduction is common in F. boliviana, occurring mostly by sucker growth or rooting from broken or cut stems."

805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**
	WRA Specialist. 2015. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits
• Elevation range exceeds 1000 m, demonstrating environmental versatility
• Grows in upper elevation tropical climates
• Naturalized on Kauai island, Colombia, Venezuela, Jamaica, Java, Reunion, India, New Zealand and a number of other countries
• Environmental weed in New Zealand
• Fuchsia magellanica has become invasive
• Shade tolerant
• Tolerates many soil types
• Forms dense thickets
• Reproduces by seeds
• Self-compatible
• Reproduces vegetatively by sucker growth or rooting from broken or cut stems
• Seeds dispersed by birds & intentionally by people

Low Risk Traits
• Unarmed (no spines, thorns or burrs)
• No reports of toxicity
• Ornamental