

<b>Taxon:</b> Loropetalum chinense (R. Br.) Oliv.	<b>Family:</b> Hamamelidaceae
<b>Common Name(s):</b> Chinese fringe flower chinese witch hazel fringe flower	<b>Synonym(s):</b> Loropetalum chinense (R. Br.) Oliv. Loropetalum chinense (R. Br.) Oliv.

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Assessor Approved	<b>End Date:</b> 14 Mar 2019
<b>WRA Score:</b> -2.0	<b>Designation:</b> L	<b>Rating:</b> Low Risk

**Keywords:** Semi-Tropical Shrub, Naturalized, Ornamental, Self-Compatible, Ballistic Dispersal

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	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)	n
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	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		

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		
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	>3
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		
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

**Supporting Data:**

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Widely cultivated, and cultivars exist, but no evidence of domestication] "This species is widely cultivated in China. Two varieties occur in China; the present authors have seen no specimens of the recently published var. coloratum C. Q. Huang (Bull. Bot. Res., Harbin 21: 508. 2001)."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2019). 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
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Forests, thickets, sunny hills; 1000-1200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang [NE India, Japan]."
	Yuan, N., Comes, H. P., Cao, Y. N., Guo, R., Zhang, Y. H., & Qiu, Y. X. (2015). A comparative study on genetic effects of artificial and natural habitat fragmentation on <i>Loropetalum chinense</i> (Hamamelidaceae) in Southeast China. <i>Heredity</i> , 114(6), 544-551	" <i>Loropetalum chinense</i> (R.Br.) Oliv. (Hamamelidaceae) is a diploid (2n=24), evergreen shrub or small tree and a major component of the subtropical evergreen broad-leaved forest of the lower mountains (ca 300-600m above sea level) of Southeast China (Lian and Xiao, 2001; Zhang et al., 2003)."
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Mar 2019]	"Native Asia-Temperate CHINA: China [Hunan, Guangxi]"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Mar 2019]	

203	Broad climate suitability (environmental versatility)	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Forests, thickets, sunny hills; 1000-1200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang [NE India, Japan]."
	Harrison, M. 2009. Flowering Shrubs and Small Trees for the South. Pineapple Press Inc, Sarasota, FL	"Hardiness: USDA Zones 7-10"
	Plants for a Future. (2019). <i>Loropetalum chinense</i> . <a href="https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense">https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense</a> . [Accessed 14 Mar 2019]	"USDA hardiness: 7-10"
	Jarrett, A. 2003. Ornamental Tropical Shrubs. Pineapple Press Inc., Sarasota, FL	"Zone(s): 8-10"

204	Native or naturalized in regions with tropical or subtropical climates	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Mar 2019]	"Native Asia-Temperate CHINA: China [Hunan, Guangxi]"
	Yuan, N., Comes, H. P., Cao, Y. N., Guo, R., Zhang, Y. H., & Qiu, Y. X. (2015). A comparative study on genetic effects of artificial and natural habitat fragmentation on <i>Loropetalum chinense</i> (Hamamelidaceae) in Southeast China. <i>Heredity</i> , 114(6), 544–551	[Subtropical] " <i>Loropetalum chinense</i> (R.Br.) Oliv. (Hamamelidaceae) is a diploid (2n=24), evergreen shrub or small tree and a major component of the subtropical evergreen broad-leaved forest of the lower mountains (ca 300–600m above sea level) of Southeast China (Lian and Xiao, 2001; Zhang et al., 2003)."

205	Does the species have a history of repeated introductions outside its natural range?	y
	<b>Source(s)</b>	<b>Notes</b>
	Flynn, T. 1999. Specimen Details for <i>Loropetalum chinensis</i> (R.Br.) Oliver. ID Number 662826. Bishop Museum, Honolulu, HI. <a href="http://nsdb.bishopmuseum.org/7945D71B-DE1D-4FD4-8896-267171665FF4">http://nsdb.bishopmuseum.org/7945D71B-DE1D-4FD4-8896-267171665FF4</a> . [Accessed 14 Mar 2019]	"1 gallon potted plant of 12 inches; stem woody, young stems reddish; leaves dark reddish-green becoming dark matte green, below dull grey-green; calyx pinkish-green, petals 4, dark pink."
	Frohlich, D. & Lau, A. 2007. Specimen Details for <i>Loropetalum chinensis</i> (R.Br.) Oliver. ID Number 729690. Bishop Museum, Honolulu, HI. <a href="http://nsdb.bishopmuseum.org/69C0A852-0596-4500-8B9B-C3AEC3963A4D">http://nsdb.bishopmuseum.org/69C0A852-0596-4500-8B9B-C3AEC3963A4D</a> . [Accessed 14 Mar 2019]	"Habitat: In front of house in shrub planting. Plant Description: Shrub about 2 m tall. Flowers bright pink, fringed. No fruits seen."

Qsn #	Question	Answer
	<p>Dave's Garden. (2019). Loropetalum, Chinese Fringe Flower, Chinese Witch Hazel, Pink Fringe Flower 'Blush' - <i>Loropetalum chinense</i> var. <i>rubrum</i>.  <a href="https://davesgarden.com/guides/pf/go/56039/">https://davesgarden.com/guides/pf/go/56039/</a>. [Accessed 14 Mar 2019]</p>	<p>"This plant has been said to grow in the following regions:, Cinisi, Attalla, Alabama Auburn, Alabama Wetumpka, Alabama Mountain Home, Arkansas Antelope, California Brentwood, California Clovis, California Fairfield, California Lakewood, California Martinez, California Merced, California San Bernardino, California San Leandro, California Santee, California Sebastopol, California Chipley, Florida Gainesville, Florida Inverness, Florida Spring Hill, Florida Tavernier, Florida Cumming, Georgia Dacula, Georgia Lilburn, Georgia Covington, Louisiana Mandeville, Louisiana Nottingham, Maryland Charlotte, North Carolina Elizabeth City, North Carolina Emerald Isle, North Carolina Waxhaw, North Carolina Maryville, Tennessee Murfreesboro, Tennessee Austin, Texas (3 reports) Blanket, Texas Broaddus, Texas Dallas, Texas Denison, Texas Houston, Texas (2 reports) La Porte, Texas New Braunfels, Texas North Richland Hills, Texas San Antonio, Texas Barboursville, Virginia Virginia Beach, Virginia Vancouver, Washington"</p>
	<p>Starr Environmental. (2011). <i>Loropetalum chinense</i> (Razzle berry).  <a href="http://www.starrenvironmental.com/images/image/?q=24710140169">http://www.starrenvironmental.com/images/image/?q=24710140169</a>  . . [Accessed 14 Mar 2019]</p>	<p>[Image of plants cultivated on Maui, Hawaiian Islands]  "<i>Loropetalum chinense</i> (Razzle berry)  Flower and leaves  Kula Botanical Garden, Maui, Hawaii.  March 07, 2011  #110307-2209"</p>

301	Naturalized beyond native range	y
	Source(s)	Notes
	<p>Serviss, B. E., &amp; Peck, J. H. (2008). New and noteworthy records of several non-native vascular plant species in Arkansas. <i>Journal of the Botanical Research Institute of Texas</i>, 2(1), 637-641</p>	<p>"<i>Loropetalum chinense</i> (R. Br.) Oliv. (Hamamelidaceae). Fringe flower is native to China. Voucher specimen (two locations located for Clark Co.; one cited below): Clark Co.: several spontaneous seedling and juvenile plants growing In a disturbed area in the vicinity of .several cultivated. reproductively mature plants of L. chlense, Arkadelphia, Henderson Stale University campus, Oct 2006, Serviss 7094 (HEND)."</p>
	<p>Diamond, A. R. (2013). New and noteworthy woody vascular plant records from Alabama. <i>Phytoneuron</i>, 47, 1-13</p>	<p>"<i>Loropetalum chinense</i> (R. Br.) Oliver var. <i>rubrum</i> Yieh (Hamamelidaceae) Vouchers: USA. Alabama. Conecuh Co.: Evergreen, Bellville Avenue between East Front Street and Desplous Street, growing in the broken sidewalk next to an abandoned building across for the First United Methodist Church, 31.432099° - 86.955465°, 29 Sep 2012, Diamond 23450. This represents the first report of this taxon from Alabama. It was not listed by Clark (1971) or Dean (1961) in their works on woody plants of Alabama. It was also not included in the Annotated Checklist of the Vascular Plants of Alabama (Kral et. al 2011). Serviss (2011) reports spontaneous seedlings of both the green and purple foliage varieties have been observed in the vicinity of reproductive age plants in Arkansas. Arkansas is the only state listed by BONAP (2011) for this species. Yanjun et. al (2009) reported that this species exhibits ballistic seed dispersal similar to our native witch hazels (<i>Hamamelis</i> sp.). Because of the unusual location of the plant, it most likely resulted from ballistic seed dispersal from shrubs growing around the church (Fig. 6)."</p>

Qsn #	Question	Answer
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. (2019). Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. <a href="http://botany.si.edu/">http://botany.si.edu/</a> . [Accessed 14 Mar 2019]	No evidence in Hawaiian Islands to date.

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

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

304	Environmental weed	n
	Source(s)	Notes
	Mulvaney, M. J. (1991). Far from the Garden Path: An Identikit Picture of Woody Ornamental Plants Invading South-Eastern Australian Bushland. PhD Dissertation. Dept. Australian National University, Canberra ACT	[ <i>Loropetalum chinense</i> scored a 20 in this system, and was not identified as invasive] "This thesis establishes a predictive model to identify woody plants with a high invasive potential in South-eastern Australia." ... "The Invasive Species Model combines and weights only those features that are required for maximum precision in identification. The model requires answers to a question concerning each of the key attributes and accrues a score, depending on the answers received. Total scores range from -300 to +400." ... "Scores were calculated for 791 woody species commonly planted in Southeastern Australia. None of the 286 species (36% of all common introductions) with a sub-zero score was invasive. There are only two invasive species amongst the 425 species with a invasive score below fifty."

305	Congeneric weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

Qsn #	Question	Answer
401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[No evidence] "Shrubs or small trees, 13 m tall, much branched; branchlets stellately pubescent. Stipules triangular-lanceolate or obovate, 35 × 1.52 mm, stellately pubescent; petiole 0.20.5 cm, stellately pubescent; leaf blade ovate, elliptic or, rarely, obovate, 26.5 × 13 cm, discolorous, abaxially densely stellately pubescent, adaxially sparsely pubescent or stellately pubescent when young, glabrescent, base asymmetrical, rounded or cuneate, margin ± entire, apex acute or shortly acuminate; lateral veins 48 on each side, abaxially prominent."

402	Allelopathic	
	Source(s)	Notes
	Appiah, K., Li, Z., Zeng, R. S., Luo, S., Oikawa, Y., & Fujii, Y. (2015). Determination of allelopathic potentials in plant species in Sino-Japanese floristic region by sandwich method and dish pack method. International Journal of Basic and Applied Sciences, 4(4), 381-394	"Table 1: Radicle and hypocotyl elongation percentages of lettuce seedlings grown on agar gel containing oven-dried plant materials tested using the sandwich method." [Effects of <i>Loropetalum chinense</i> extracts were not significant]

403	Parasitic	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Shrubs or small trees, 13 m tall, much branched; branchlets stellately pubescent." [No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	NC State Extension. (2019). <i>Loropetalum chinense</i> . <a href="https://plants.ces.ncsu.edu/plants/all/loropetalum-chinensis/">https://plants.ces.ncsu.edu/plants/all/loropetalum-chinensis/</a> . [Accessed 14 Mar 2019]	"Wildlife Value: This plant is resistant to damage by deer." [Suggests plants may be unpalatable to browsing animals]

405	Toxic to animals	n
	Source(s)	Notes
	Plants for a Future. (2019). <i>Loropetalum chinense</i> . <a href="https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense">https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense</a> . [Accessed 14 Mar 2019]	"Known Hazards: None known"
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
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Qsn #	Question	Answer
	Source(s)	Notes
	<p>Conner, K. N., Olive, J., Zhang, L., Jacobi, J., &amp; Putnam, M. L. (2013). First report of bacterial gall on <i>Loropetalum chinense</i> caused by <i>Pseudomonas savastanoi</i> in the United States. <i>Plant Disease</i>, 97(6), 835-835</p>	<p>"Bacterial gall symptoms were observed on <i>Loropetalum chinense</i> (R. Br.) Oliv. in two separate commercial nurseries in South Alabama during the spring of 2012. Limb dieback and plant death was first reported by the growers. Plants with dieback symptoms had galling and irregular dark callus formation on the lower stem and lower branches. Galls were small, 0.2 to 1 cm, inconspicuous, and in some cases girdled the stem causing breakage of the main stem. In both locations, 30 to 40% of the crop was affected. Similar symptoms have been observed on <i>L. chinense</i> in nursery and landscape plantings in central Alabama, North Carolina, and Georgia in previous years. Bacterial colonies were isolated from four plants representing two different locations. Isolates were recovered from surface sterilized symptomatic tissue on nutrient agar and King's medium B (KMB). All isolates were gram-negative and fluoresced blue-green under UV light after 48 h of growth at 28°C on KMB. One representative isolate from each site was identified as <i>Pseudomonas savastanoi</i> based on their fatty acid profiles (similarity index of 0.776; MIS-TSBA, version 4.0, MIDI Inc., Newark, DE) and LOPAT tests (2). The identity was confirmed by sequencing a 900-bp portion of the 16S rDNA gene, which revealed 98% similarity to the <i>P. savastanoi</i> type strain in NCBI (Accession No. AB021402). In greenhouse pathogenicity tests, eight <i>Loropetalum</i> liners were inoculated with a bacterial suspension (107 CFU/ml) of each of the two isolates. Plants were inoculated by injecting the suspension into the lower stem after wounding by puncturing with needles or slicing sections of the bark. Controls were inoculated with water. All plants inoculated with the bacteria developed gall symptoms in 8 weeks under 90% relative humidity at 30°C. The bacteria were reisolated from five inoculated plants. DNA was extracted from each isolate, amplified using primer pair 27F/1492R targeting the 16S rDNA gene (1), and sequenced. Sequences (900 bp) from all isolates shared 98 to 99% similarity to <i>P. savastanoi</i> type strain in GenBank (Accession No. AB021402). Nucleotide sequence data reported are available in GenBank under accessions JX915832 to 37. To our knowledge, this is the first report of bacterial gall of <i>L. chinense</i> caused by <i>P. savastanoi</i> in the United States. Given the increasing prevalence of this disease in South Alabama, its confirmation is a significant step toward management recommendations for growers."</p>
	<p>Clemson Cooperative Extension. (2019). <i>Loropetalum</i> Factsheet HGIC 1085. <a href="https://hgic.clemson.edu/factsheet/loropetalum/">https://hgic.clemson.edu/factsheet/loropetalum/</a>. [Accessed 14 Mar 2019]</p>	<p>"Normally, <i>loropetalums</i> have few serious pest or disease problems. However, root rot can be an issue, especially in poorly drained soils. In addition, leaves may become chlorotic (yellow) in alkaline (pH greater than 7.0) soil. Recently, however, a bacterial gall disease (caused by the bacterium <i>Pseudomonas savastanoi</i>) has been found on <i>loropetalums</i> in SC. Inspect and avoid buying plants with galls. These dark-colored galls on branches may cause branch dieback or plant death. Prune the branches several inches below the galls, and dispose of the prunings. Disinfest the pruners between cuts by dipping in 10% bleach solution, or spray pruners with rubbing alcohol. <i>Loropetalums</i> are relatively deer resistant."</p>
	<p>Jarrett, A. 2003. <i>Ornamental Tropical Shrubs</i>. Pineapple Press Inc., Sarasota, FL</p>	<p>"Problems: spider mites, root rot, nematodes, nutrient deficiencies"</p>



Qsn #	Question	Answer
407	<b>Causes allergies or is otherwise toxic to humans</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Plants for a Future. (2019). <i>Loropetalum chinense</i> . <a href="https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense">https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense</a> . [Accessed 14 Mar 2019]	"Known Hazards: None known"
	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	
	<b>Source(s)</b>	<b>Notes</b>
	Yuan, N., Comes, H. P., Cao, Y. N., Guo, R., Zhang, Y. H., & Qiu, Y. X. (2015). A comparative study on genetic effects of artificial and natural habitat fragmentation on <i>Loropetalum chinense</i> (Hamamelidaceae) in Southeast China. <i>Heredity</i> , 114(6), 544–551	" <i>Loropetalum chinense</i> (R.Br.) Oliv. (Hamamelidaceae) is a diploid (2n=24), evergreen shrub or small tree and a major component of the subtropical evergreen broad-leaved forest of the lower mountains (ca 300–600m above sea level) of Southeast China (Lian and Xiao, 2001; Zhang et al., 2003)." [Fire ecology unknown. No evidence found]
	WRA Specialist. (2019). Personal Communication	No information was found on the fire ecology of this species

409	Is a shade tolerant plant at some stage of its life cycle	
	<b>Source(s)</b>	<b>Notes</b>
	Jarrett, A. 2003. Ornamental Tropical Shrubs. Pineapple Press Inc., Sarasota, FL	"Exposure: full sun to partial shade"
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Forests, thickets, sunny hills"
	Plants for a Future. (2019). <i>Loropetalum chinense</i> . <a href="https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense">https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense</a> . [Accessed 14 Mar 2019]	"It can grow in semi-shade (light woodland) or no shade."
	NC State Extension. (2019). <i>Loropetalum chinense</i> . <a href="https://plants.ces.ncsu.edu/plants/all/loropetalum-chinensis/">https://plants.ces.ncsu.edu/plants/all/loropetalum-chinensis/</a> . [Accessed 14 Mar 2019]	"Site: Sun to partial shade; prefers acidic, moist, well-drained soil high in organic matter; does well in clay"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Clemson Cooperative Extension. (2019). <i>Loropetalum</i> Factsheet HGIC 1085. <a href="https://hgic.clemson.edu/factsheet/loropetalum/">https://hgic.clemson.edu/factsheet/loropetalum/</a> . [Accessed 14 Mar 2019]	"However, root rot can be an issue, especially in poorly drained soils. In addition, leaves may become chlorotic (yellow) in alkaline (pH greater than 7.0) soil."

Qsn #	Question	Answer
	Jarrett, A. 2003. Ornamental Tropical Shrubs. Pineapple Press Inc., Sarasota, FL	"Soil: acidic and well-drained"
	NC State Extension. (2019). <i>Loropetalum chinense</i> var. <i>rubrum</i> . <a href="https://plants.ces.ncsu.edu/plants/all/loropetalum-chinensis-var-rubrum/">https://plants.ces.ncsu.edu/plants/all/loropetalum-chinensis-var-rubrum/</a> . [Accessed 14 Mar 2019]	"tolerates range of soil types but prefers acidic, moist, well-drained soil high in organic matter; drought and heat tolerant"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Shrubs or small trees, 13 m tall, much branched; branchlets stellately pubescent."

412	Forms dense thickets	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Forests, thickets, sunny hills; 1000-1200 m." [May be a component of thicket vegetation. No other evidence found that this species forms dense, monotypic thickets]

501	Aquatic	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Terrestrial] "Shrubs or small trees, 13 m tall, much branched; branchlets stellately pubescent." ... "Forests, thickets, sunny hills"

502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Mar 2019]	Family: Hamamelidaceae Subfamily: Hamamelidoideae Tribe: Hamamelideae Subtribe: Loropetalinae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 14 Mar 2019]	Family: Hamamelidaceae Subfamily: Hamamelidoideae Tribe: Hamamelideae Subtribe: Loropetalinae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed ]	"Shrubs or small trees, 13 m tall, much branched; branchlets stellately pubescent."

601	Evidence of substantial reproductive failure in native habitat	n
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[No evidence] "Forests, thickets, sunny hills; 1000-1200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang [NE India, Japan]. This species is widely cultivated in China."

602	Produces viable seed	y
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"capsules ovoid or obovoid-globose, 78 × 67 mm, stellately tomentose, hairs brown, apex rounded, adnate to floral cup for 2/3-3/4 of their length. Seeds ovoid-globose or ellipsoid, 47 × 3.54 mm."
	Plants for a Future. (2019). <i>Loropetalum chinense</i> . <a href="https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense">https://pfaf.org/user/Plant.aspx?LatinName=Loropetalum+chinense</a> . [Accessed 14 Mar 2019]	"Propagation: Seed - sow in a warm greenhouse in late winter or early spring[188]. When they are large enough to handle, prick the seedlings out into individual pots and grow them on in the greenhouse for at least their first winter. Plant them out into their permanent positions in late spring or early summer, after the last expected frosts. Give the plants some protection from the cold for at least their first winter outdoors. Cuttings of half-ripe wood, 5 - 8cm with a heel, July/August in a frame[200]. Fair to good percentage [78]. Layering in the spring[188]."
	Harrison, M. 2009. Flowering Shrubs and Small Trees for the South. Pineapple Press Inc, Sarasota, FL	"Propagation: Seeds; cuttings; layering of lower limbs"

603	Hybridizes naturally	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2019). Personal Communication	Unknown. No evidence found

604	Self-compatible or apomictic	y
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Flowers bisexual, usually 4 or 5(or 6)-merous."

Qsn #	Question	Answer
	Gong, W., Liu, W., Gu, L., Kaneko, S., Koch, M. A., & Zhang, D. (2016). From glacial refugia to wide distribution range: demographic expansion of <i>Loropetalum chinense</i> (Hamamelidaceae) in Chinese subtropical evergreen broadleaved forest. <i>Organisms Diversity &amp; Evolution</i> , 16 (1), 23-38	"Pollination studies indicated self-compatibility of <i>L. chinense</i> ; however, the possibility of cross-pollination cannot be excluded as <i>Thrips</i> sp. has been detected to exist inside the flowers (Gu and Zhang 2008; Gu 2008). Its congener <i>Loropetalum subcordatum</i> (Bentham) Oliver, an endemic endangered species with contrastingly narrow and scattered distribution pattern in China, shows similar ecological preferences and is suggested to be autogamy based on previous studies"
	Lei, G. U., & Zhang, D. X. (2008). Autogamy of an endangered species: <i>Loropetalum subcordatum</i> (Hamamelidaceae). <i>Journal of Systematics and Evolution</i> , 46(5), 651-657	[Autogamy, or self-fertilization, documented in genus] "The results indicated that <i>L. subcordatum</i> was facultatively autogamous and without apomixes."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. <i>Flora of China</i> . Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Inflorescence a short raceme or nearly capitate, terminal, mostly on short lateral branches, 316-flowered; peduncle 0.81 cm, stellately pubescent; bracts linear or lanceolate, 24.5 mm. Flowers shortly pedicellate, open before leaves appear. Floral cup cupular, stellately pubescent, 1.21.5 mm. Sepals ovate, 23 mm. Petals 4(6), white, pale yellow or red, 12 cm, apex obtuse or rounded. Stamens 4 or 5, filaments very short, connective elongated into a horn, 0.40.5 mm, anthers ovoid, 0.50.6 mm; staminodes 46, scalelike, alternate with stamens. Ovary inferior, stellately pubescent, styles ca.1 mm."
	Yuan, N., Comes, H. P., Cao, Y. N., Guo, R., Zhang, Y. H., & Qiu, Y. X. (2015). A comparative study on genetic effects of artificial and natural habitat fragmentation on <i>Loropetalum chinense</i> (Hamamelidaceae) in Southeast China. <i>Heredity</i> , 114(6), 544–551	"The pollination biology of <i>L. chinense</i> has not been reported yet. However, the bisexual flowers of this species are possibly pollinated by flies, as reported for the closely related <i>L. subcordatum</i> (Benth.) Oliv. (Gu and Zhang, 2008)."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Harrison, M. 2009. <i>Flowering Shrubs and Small Trees for the South</i> . Pineapple Press Inc, Sarasota, FL	"Propagation: Seeds; cuttings; layering of lower limbs" [No evidence of natural vegetative spread documented for this species]

607	Minimum generative time (years)	>3
	Source(s)	Notes
	Yuan, N., Comes, H. P., Cao, Y. N., Guo, R., Zhang, Y. H., & Qiu, Y. X. (2015). A comparative study on genetic effects of artificial and natural habitat fragmentation on <i>Loropetalum chinense</i> (Hamamelidaceae) in Southeast China. <i>Heredity</i> , 114(6), 544–551	"Individuals typically require 5–8 years to reach the reproductive stage, and genets may persist for decades (YX Qiu, personal observation)."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes

Qsn #	Question	Answer
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"capsules ovoid or obovoid-globose, 78 × 67 mm, stellately tomentose, hairs brown, apex rounded, adnate to floral cup for 2/33/4 of their length. Seeds ovoid-globose or ellipsoid, 47 × 3.54 mm." [No means of external attachment]
	Du, Y., Mi, X., Liu, X., Chen, L., & Ma, K. (2009). Seed dispersal phenology and dispersal syndromes in a subtropical broad-leaved forest of China. Forest Ecology and Management, 258(7), 1147-1152	"Table 1. Fruit type, dispersal units, diaspore color and dispersal syndromes of woody species from subtropical forest in East China (T, tree; S, shrub; Z, zoochory; A, anemochory; B, ballistic; F, fruit; S, seed)." [Loropetalum chinense - Dispersal syndrome = B, ballistic]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Harrison, M. 2009. Flowering Shrubs and Small Trees for the South. Pineapple Press Inc, Sarasota, FL	"Use loropetalum as a single specimen plant, or in corner and understory plantings, screens, or mixed shrub borders. Older specimens may serve as small, multitrunked trees if lower branches are removed."
	Jarrett, A. 2003. Ornamental Tropical Shrubs. Pineapple Press Inc., Sarasota, FL	"Uses: shrub border, accent, foundation, massing, tree"

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Yuan, N., Comes, H. P., Cao, Y. N., Guo, R., Zhang, Y. H., & Qiu, Y. X. (2015). A comparative study on genetic effects of artificial and natural habitat fragmentation on <i>Loropetalum chinense</i> (Hamamelidaceae) in Southeast China. Heredity, 114(6), 544–551	"The fruit of <i>L. chinense</i> is a dehiscent, two-seeded capsule. According to Zhang et al. (2003), this species exhibits ballistic seed dispersal (similar to <i>Hamamelis</i> spp.)." [Seeds could potentially be dispersed into soil or potted plants grown in proximity to this, but direct evidence is currently lacking]

704	Propagules adapted to wind dispersal	
	Source(s)	Notes
	Diamond, A. R. (2013). New and noteworthy woody vascular plant records from Alabama. Phytoneuron, 47, 1-13	[Wind may facilitate ballistic dispersal over short distances] "Yanjun et. al (2009) reported that this species exhibits ballistic seed dispersal similar to our native witch hazels ( <i>Hamamelis</i> sp.). Because of the unusual location of the plant, it most likely resulted from ballistic seed dispersal from shrubs growing around the church"

705	Propagules water dispersed	
	Source(s)	Notes
	Diamond, A. R. (2013). New and noteworthy woody vascular plant records from Alabama. Phytoneuron, 47, 1-13	"Yanjun et. al (2009) reported that this species exhibits ballistic seed dispersal similar to our native witch hazels ( <i>Hamamelis</i> sp.). Because of the unusual location of the plant, it most likely resulted from ballistic seed dispersal from shrubs growing around the church" [Unknown. Cultivation near water may facilitate secondary dispersal]

706	Propagules bird dispersed	n
	Source(s)	Notes

Qsn #	Question	Answer
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"capsules ovoid or obovoid-globose, 78 × 67 mm, stellately tomentose, hairs brown, apex rounded, adnate to floral cup for 2/33/4 of their length. Seeds ovoid-globose or ellipsoid, 47 × 3.54 mm."
	Du, Y., Mi, X., Liu, X., Chen, L., & Ma, K. (2009). Seed dispersal phenology and dispersal syndromes in a subtropical broad-leaved forest of China. Forest Ecology and Management, 258(7), 1147-1152	"Table 1. Fruit type, dispersal units, diaspore color and dispersal syndromes of woody species from subtropical forest in East China (T, tree; S, shrub; Z, zoochory; A, anemochory; B, ballistic; F, fruit; S, seed)." [Loropetalum chinense - Dispersal syndrome = B, ballistic]

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"capsules ovoid or obovoid-globose, 78 × 67 mm, stellately tomentose, hairs brown, apex rounded, adnate to floral cup for 2/33/4 of their length. Seeds ovoid-globose or ellipsoid, 47 × 3.54 mm." [No means of external attachment]
	Du, Y., Mi, X., Liu, X., Chen, L., & Ma, K. (2009). Seed dispersal phenology and dispersal syndromes in a subtropical broad-leaved forest of China. Forest Ecology and Management, 258(7), 1147-1152	"Table 1. Fruit type, dispersal units, diaspore color and dispersal syndromes of woody species from subtropical forest in East China (T, tree; S, shrub; Z, zoochory; A, anemochory; B, ballistic; F, fruit; S, seed)." [Loropetalum chinense - Dispersal syndrome = B, ballistic]

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Du, Y., Mi, X., Liu, X., Chen, L., & Ma, K. (2009). Seed dispersal phenology and dispersal syndromes in a subtropical broad-leaved forest of China. Forest Ecology and Management, 258(7), 1147-1152	[No evidence. Unlikely to be internally dispersed] "Table 1. Fruit type, dispersal units, diaspore color and dispersal syndromes of woody species from subtropical forest in East China (T, tree; S, shrub; Z, zoochory; A, anemochory; B, ballistic; F, fruit; S, seed)." [Loropetalum chinense - Dispersal syndrome = B, ballistic]

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Wu, Z. Y., P. H. Raven & D. Y. Hong, eds. 2003. Flora of China. Vol. 9 (Pittosporaceae through Connaraceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Capsules dehiscent by two 2-lobed valves, lower part enveloped by floral cup. Seeds 1 per carpel" [Unlikely. Few-seeded fruit]
	Du, Y., Mi, X., Liu, X., & Ma, K. (2012). The effects of ice storm on seed rain and seed limitation in an evergreen broad-leaved forest in east China. Acta Oecologica, 39, 87-93	"Table 1 Demographic characteristics of 62 species whose seeds were collected during the 40-month period (T, tree; S, shrub). Dispersers are from Du et al. (2009), and Teng Fang (unpublished data). Pre-/post-seed density is the density of seeds 20 months before and 20 months after the ice storm. Pre-/post-seed limitation, pre-/post-source limitation, and pre-/post-dispersal limitation are the limitation 20 months before and 20 months after the ice storm. IV is the abbreviation of important value. Abundance is the total individual number in 24 ha plot. Table was sorted by the pre-seed density." [Loropetalum chinense Pre-seed density of 1.08 seeds m-2 and Post-seed density of 1.58 seeds m-2 recorded]

Qsn #	Question	Answer
802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. (2019) Seed Information Database (SID). Version 7.1. Available from: <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a> . [Accessed 14 Mar 2019]	"Storage Behaviour: No data available for species or genus. Of 9 known taxa of family HAMAMELIDACEAE, 100.00% Orthodox(p/?)"

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	NC State Extension. (2019). <i>Loropetalum chinense</i> . <a href="https://plants.ces.ncsu.edu/plants/all/loropetalum-chinensis/">https://plants.ces.ncsu.edu/plants/all/loropetalum-chinensis/</a> . [Accessed 14 Mar 2019]	"Drought tolerant; can be severely pruned after flowering"
	Clemson Cooperative Extension. (2019). <i>Loropetalum</i> Factsheet HGIC 1085. <a href="https://hgic.clemson.edu/factsheet/loropetalum/">https://hgic.clemson.edu/factsheet/loropetalum/</a> . [Accessed 14 Mar 2019]	"Planted in the right location, they do not require pruning; however, they tolerate even heavy pruning very well. When necessary, prune in the spring after bloom so as not to reduce flowering the following spring."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	Unknown

**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Grows in temperate to subtropical climates
- Naturalized in Alabama, and Arkansas (continental US), but no evidence in the Hawaiian Islands to date
- Tolerates many soil types
- Reproduces by seeds
- Self-compatible
- Seeds dispersed ballistically from dehiscent capsules and intentionally by people
- Tolerates severe pruning

Low Risk Traits

- No reports of invasiveness or detrimental impacts outside introduced range
- Unarmed (no spines, thorns, or burrs)
- Not reported to spread vegetatively
- Reaches maturity in 5-8 years
- Without human assistance, ballistic dispersal may limit potential spread to vicinity of cultivated plants