Family: ***Rosaceae***

Taxon: ***Prunus serrulata***

Synonym: *Prunus serrulata var. lannesiana*
Prunus serrulata var. pubescens
Prunus serrulata var. serrulata

Common Name: hill cherry
Japanese mountain cherry
yama zakura

Questionaire : current 20090513 **Assessor:** Assessor **Designation:** EVALUATE
Status: Assessor Approved **Data Entry Person:** Assessor **WRA Score 2.5**

101	**Is the species highly domesticated?**	**y=-3, n=0**	**n**
102	**Has the species become naturalized where grown?**	**y=1, n=-1**	
103	**Does the species have weedy races?**	**y=1, n=-1**	
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)**	**Low**
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)**	**y**
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)**	
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**	**y=1, n=0**	
403	**Parasitic**	**y=1, n=0**	**n**
404	**Unpalatable to grazing animals**	**y=1, n=-1**	**y**
405	**Toxic to animals**	**y=1, n=0**	
406	**Host for recognized pests and pathogens**	**y=1, n=0**	
407	**Causes allergies or is otherwise toxic to humans**	**y=1, n=0**	
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**
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**	**n**
501	**Aquatic**	**y=5, n=0**	**n**
502	**Grass**	**y=1, n=0**	**n**
503	**Nitrogen fixing woody plant**	**y=1, n=0**	**n**
504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**y=1, n=0**	**n**
601	**Evidence of substantial reproductive failure in native habitat**	**y=1, n=0**	**n**
602	**Produces viable seed**	**y=1, n=-1**	**y**
603	**Hybridizes naturally**	**y=1, n=-1**	
604	**Self-compatible or apomictic**	**y=1, n=-1**	
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**	**y=1, n=-1**	**n**
705	**Propagules water dispersed**	**y=1, n=-1**	**n**
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)**	**y=1, n=-1**	**n**
802	**Evidence that a persistent propagule bank is formed (>1 yr)**	**y=1, n=-1**	**y**
803	**Well controlled by herbicides**	**y=-1, n=1**	
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)**	**y=-1, n=1**	

Designation: EVALUATE **WRA Score** 2.5

Supporting Data:

101	2007. Chang, K.-S./Chang, C.-S./Park, T.Y./Roh, M.S.. Reconsideration of the Prunus serrulata complex (Rosaceae) and related taxa in eastern Asia. Botanical Journal of the Linnean Society. 154: 35–54.	[Is the species highly domesticated? No] "Prunus serrulata was described by Lindley (1830) to include double white flowers as a garden cultivated form (Wilson, 1916). Wilson (1916) described single flowers as a wild form, P. serrulata var. spontanea. This double vs. single flower character is not considered to be sufficiently differentiated between P. serrulata var. serrulata and P. serrulata var. spontanea to warrant the designation of the rank of variety. Instead, a plausible suggestion is that var. spontanea be recognized as a form. Therefore, a new combination is published here."
101	2013. Missouri Botanical Gardens. Prunus serrulata. http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/plant-finder/plant-details/kc/a915/prunus-serrulata.aspx [Accessed 05 July 2013]	[Is the species highly domesticated? Non-fruiting varieties would virtually eliminate any invasive potential] "This species is rarely sold in commerce, however. What is commonly sold in commerce under the name of Japanese flowering cherry are a very large number of non-fruiting, often grafted cultivars ('Kwanzan' or 'Kanzan' being perhaps the most popular), that generally grow in the 15-25' range with vase-shaped to rounded crowns."
102	2013. WRA Specialist. Personal Communication.	NA
103	2013. WRA Specialist. Personal Communication.	NA
201	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Species suited to tropical or subtropical climate(s) 0-Low] "Native: ASIA-TEMPERATE. China: China - Anhui, Guizhou, Heilongjiang, Hubei, Hunan, Jiangxi, Shandong, Zhejiang Eastern Asia: Japan - Honshu, Kyushu, Shikoku; Korea"
202	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Quality of climate match data 2-High]
203	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Broad climate suitability (environmental versatility)? No] "When planted out near sea level, they bloom well and leaf out during the first year … but thereafter the tree goes into gradual decline and ultimately must be replaced by another tree. At higher elevations, flowering cherries prosper; in February their blossom are s beautiful sight in areas such as Tantalus, Kula, Koke`e and Kamuela."
203	2013. PlantFacts. Prunus serrulata - Japanese Flowering Cherry or Oriental Cherry (Rosaceae). Ohio State University Department of Horticulture and Crop Science, plantfacts.osu.edu/pdf/0247-906.pdf	[Broad climate suitability (environmental versatility)? No] "-Zones 5 (6) to 8"
204	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Native or naturalized in regions with tropical or subtropical climates? No] "Naturalised plants of P. serrulata appear to be referable to the Japanese hill cherry (P. serrulata var. spontanea (Maxim.) E. Wilson)." [Temperate]
204	2012. Benitez, D.M. et al.. The distribution of invasive plant species of concern in the Kīlauea & Mauna Loa strip areas of Hawai'I Volcanoes National Park, 2000-2010. Tech. Rep. 179. HCSU & PCSU, University of Hawai`i, Honolulu	[Native or naturalized in regions with tropical or subtropical climates? Yes. Higher elevation subtropical climate of Hawaii] "Since 2000, Japanese flowering cherry trees, saplings and seedlings have been found occasionally in wet forest SEA units in primarily native vegetation. From 2000- 2007, 341 prunus trees, saplings and seedlings were discovered and removed during systematic ground sweeps from Koa (215 ha), Pu'u (155 ha) and Small Tract (144 ha) SEAs in 'Ōla'a wet forest. Mature prunus trees remain along the south boundary fences of Small Tract and Koa units, and on adjacent private pastures"
204	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Native or naturalized in regions with tropical or subtropical climates? No] "Native: ASIA-TEMPERATE. China: China - Anhui, Guizhou, Heilongjiang, Hubei, Hunan, Jiangxi, Shandong, Zhejiang Eastern Asia: Japan - Honshu, Kyushu, Shikoku; Korea"
205	2013. PlantFacts. Prunus serrulata - Japanese Flowering Cherry or Oriental Cherry (Rosaceae). Ohio State University Department of Horticulture and Crop Science, plantfacts.osu.edu/pdf/0247-906.pdf	[Does the species have a history of repeated introductions outside its natural range? Yes] "Prunus serrulata is a popular flower tree because of its dramatic display of flowers in the spring. Japanese Flowering Cherry is a relatively short-lived plant in the landscape because of numerous pest and disease problems. The cultivar 'Kwanzan' (or 'Kanzan') is the most popular and cold hardy of many cultivars that can be grown in Western countries."

301	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Naturalized beyond native range? Yes] "N.: N. Auckland (well established at Taheke), Auckland (Waitemata Harbour area), Wellington City. Hillsides and gullies, scrub margins. " … "Naturalised plants of P. serrulata appear to be referable to the Japanese hill cherry (P. serrulata var. spontanea (Maxim.) E. Wilson)."
301	2011. Williams, P.A.. Secondary succession through non-native dicotyledonous woody plants in New Zealand. New Zealand Natural Sciences. 36: 73-91.	[Naturalized beyond native range? Yes] "...in Nelson there is a large area of mixed gorse and broom being replaced by Japanese cherry (Prunus serrulata; Figure 3, author, pers. obs.)."
301	2012. Benitez, D.M. et al.. The distribution of invasive plant species of concern in the Kīlauea & Mauna Loa strip areas of Hawai'I Volcanoes National Park, 2000-2010. Tech. Rep. 179. HCSU & PCSU, University of Hawai`i, Honolulu	[Naturalized beyond native range? Yes] "Since 2000, Japanese flowering cherry trees, saplings and seedlings have been found occasionally in wet forest SEA units in primarily native vegetation. From 2000- 2007, 341 prunus trees, saplings and seedlings were discovered and removed during systematic ground sweeps from Koa (215 ha), Pu'u (155 ha) and Small Tract (144 ha) SEAs in 'Ōla'a wet forest. Mature prunus trees remain along the south boundary fences of Small Tract and Koa units, and on adjacent private pastures"
302	1988. Esler, A.E.. The naturalisation of plants in urban Auckland, New Zealand 6. Alien plants as weeds. New Zealand Journal of Botany. 26(4): 585-618.	[Garden/amenity/disturbance weed? Yes] "Japanese cherry (Prunus serrulata) though attractive, has become too plentiful to be acceptable in gardens and shrubberies." [Identified as a "tertiary threatening weed" that may "become quite plentiful if uncontrolled"]
302	2010. Australian Association of Bush Regenerators. Bushland Weeds of the Blue Mountains Region. http://www.aabr.org.au/index.php?option=com_content&view=article&id=53:bushland-weeds-of-the-blue-mountains-region&catid=92:weed-lists&Itemid=75	[Garden/amenity/disturbance weed? Yes] Listed as a weed, but with no description of impacts
302	2012. Benitez, D.M. et al.. The distribution of invasive plant species of concern in the Kīlauea & Mauna Loa strip areas of Hawai'I Volcanoes National Park, 2000-2010. Tech. Rep. 179. HCSU & PCSU, University of Hawai`i, Honolulu	[Garden/amenity/disturbance weed? Yes] "Japanese flowering cherry is not generally regarded as highly disruptive in Hawai'i, yet this species' occurrence in native forest is consistent with reports of bird dispersed fruits (Staples et al. 2000) suggesting continued spread is likely surrounding known populations. Furthermore, the family Rosaceae (Daehler 1998) is notable for being highly invasive in Hawai'i and consideration should be given to increase efforts to control plants along the south boundary fences of Small Tract and Koa units in 'Ōla'a, and if possible to work with landowners to remove plants on adjacent pasture lands as these likely represent an important seed source to the park."
303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No] No evidence
304	2013. WRA Specialist. Personal Communication.	[Environmental weed?] Naturalized and regarded as invasive in New Zealand, and in Hawaii Volcanoes National Park, but there is no evidence of impacts on native ecosystems at this point. See 3.01 and 3.02 for further details
305	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Congeneric weed? Yes] "Prunus cerasifera … becomes abundant and shades out native vegetation" … "Prunus laurocerasus … spreading growth habit and the dense foliage shade out native vegetation and strongly reduce species richness." … "Prunus serotina … fast growth and persistence leads to dense stands that eliminate native shrubs and trees."
401	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Produces spines, thorns or burrs? No] "Deciduous, spreading to erect tree, 4-12 (15) m high when mature, not armed; trunk tall. Lf petiole (14)-20-32-(40) mm long, glabrous or occasionally with sparse hairs; blade usually thin, usually broadly ovate to broadly elliptic, occasionally oblong or narrowly obovate, (70) 80-130-(155) × (40)-45-60-(65) mm, acuminate to long-acuminate at apex, usually rounded to subcordate or occasionally cuneate at base, glabrous above and below, with lower surface slightly paler, serrate with teeth aristate and often gland-tipped; stipules long-triangular, early deciduous."
402	2013. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Parasitic? No] No evidence

404	2007. Derano, P.. Creating A Deer Proof Garden. Creating A Deer Proof Garden, Ltd,	[Unpalatable to grazing animals? Yes] "Of all the prunus species, and there are many, Japanese flowering cherry is the most deer resistant. The other species will be heavily browsed by deer. Deer will not feed heavily on Japanese flowering cherry (Prunus serrulata). I have had several plants on my property for years with very little, if any, browsing on each tree."
405	1987. Ebinger, J.E./Bergman, D.L.. Cyanogenesis in Woody Ornamentals. Proceedings of the Indiana Academy of Science. 97: 109-114.	[Toxic to animals?] "All species of Amelanchier (juneberry), Cotoneaster (Cotoneaster), and Prunus (peach and cherry) tested were strongly cyanogenic…"
405	2013. Plants for a Future Database. Prunus serrulata. http://www.pfaf.org/user/Plant.aspx?LatinName=Prunus+serrulata [Accessed 05 July 2013]	[Toxic to animals?] "Although no specific mention has been seen for this species, it belongs to a genus where most, if not all members of the genus produce hydrogen cyanide, a poison that gives almonds their characteristic flavour. This toxin is found mainly in the leaves and seed and is readily detected by its bitter taste. It is usually present in too small a quantity to do any harm but any very bitter seed or fruit should not be eaten. In small quantities, hydrogen cyanide has been shown to stimulate respiration and improve digestion, it is also claimed to be of benefit in the treatment of cancer. In excess, however, it can cause respiratory failure and even death."
406	2013. Missouri Botanical Gardens. Prunus serrulata. http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/plant-finder/plant-details/kc/a915/prunus-serrulata.aspx [Accessed 05 July 2013]	[Host for recognized pests and pathogens?] "Susceptible to a large number of insect and disease pests. Potential diseases include leaf spot, die back, leaf curl, powdery mildew, root rot and fireblight. Potential insects include aphids, scale, borers, leafhoppers, caterpillars, tent caterpillars and Japanese beetles. Spider mites may also be troublesome."
407	2013. Plants for a Future Database. Prunus serrulata. http://www.pfaf.org/user/Plant.aspx?LatinName=Prunus+serrulata [Accessed 05 July 2013]	[Causes allergies or is otherwise toxic to humans? Possibly Risks] "Although no specific mention has been seen for this species, it belongs to a genus where most, if not all members of the genus produce hydrogen cyanide, a poison that gives almonds their characteristic flavour. This toxin is found mainly in the leaves and seed and is readily detected by its bitter taste. It is usually present in too small a quantity to do any harm but any very bitter seed or fruit should not be eaten. In small quantities, hydrogen cyanide has been shown to stimulate respiration and improve digestion, it is also claimed to be of benefit in the treatment of cancer. In excess, however, it can cause respiratory failure and even death."
408	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Creates a fire hazard in natural ecosystems? No evidence]
408	2007. Hansen, M.F./Fernandez, R.T./Penskar, M.R.. Wildfire-resistant Landscape Plants for Michigan. Wildfire Series E2948. Michigan State Univeristy Extension, E. Lansing	[Creates a fire hazard in natural ecosystems? No evidence] Listed among Wildfire-resistant landscape plants for Michigan
408	2012. Benitez, D.M. et al.. The distribution of invasive plant species of concern in the Kīlauea & Mauna Loa strip areas of Hawai'I Volcanoes National Park, 2000-2010. Tech. Rep. 179. HCSU & PCSU, University of Hawai`i, Honolulu	[Creates a fire hazard in natural ecosystems? No evidence]
409	2006. Wiser, S.K./Allen, R.B.. What Controls Invasion of Indigenous Forests by Alien Plants? Pp. 195-209 In Biological Invasions in New Zealand. Springer, Berlin Heidelberg	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Table 13.1 Alien species recorded as invading the understory of relatively intact indigenous forest" … "Other shrub species that invade disturbed forests may have the potential to persist. For example, abundant seedlings of Ligustrum lucidum, Euonymus japonicus, and Prunus serrulata occur within a 0.7-ha coastal, broad leaved forest remnant in the Auckland city area, suggesting a high level of shade tolerance (Smale and Gardner 1999; Table 13.1)."
410	2013. PlantFacts. Prunus serrulata - Japanese Flowering Cherry or Oriental Cherry (Rosaceae). Ohio State University Department of Horticulture and Crop Science, plantfacts.osu.edu/pdf/0247-906.pdf	[Tolerates a wide range of soil conditions? Yes] "-prefers damp, well-drained, fertile soils but will tolerate others; especially of variable pH."
411	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Climbing or smothering growth habit? No] "Deciduous, spreading to erect tree, 4-12 (15) m high when mature, not armed; trunk tall."

412	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Forms dense thickets? No] "Hillsides and gullies, scrub margins." [No evidence]
412	2012. Benitez, D.M. et al.. The distribution of invasive plant species of concern in the Kīlauea & Mauna Loa strip areas of Hawai'I Volcanoes National Park, 2000-2010. Tech. Rep. 179. HCSU & PCSU, University of Hawai`i, Honolulu	[Forms dense thickets? No. No evidence to date]"Since 2000, Japanese flowering cherry trees, saplings and seedlings have been found occasionally in wet forest SEA units in primarily native vegetation. From 2000- 2007, 341 prunus trees, saplings and seedlings were discovered and removed during systematic ground sweeps from Koa (215 ha), Pu'u (155 ha) and Small Tract (144 ha) SEAs in 'Ōla'a wet forest. Mature prunus trees remain along the south boundary fences of Small Tract and Koa units, and on adjacent private pastures."
501	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Aquatic? No] "Hillsides and gullies, scrub margins."
502	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Grass? No] Rosaceae
503	2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Nitrogen fixing woody plant? No] Prunus [Not among Rosaceae genera reported to be nitrogen fixing]
504	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Deciduous, spreading to erect tree, 4-12 (15) m high when mature, not armed; trunk tall."
601	2007. Chang, K.-S./Chang, C.-S./Park, T.Y./Roh, M.S.. Reconsideration of the Prunus serrulata complex (Rosaceae) and related taxa in eastern Asia. Botanical Journal of the Linnean Society. 154: 35–54.	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Produces viable seed? Yes] "Naturalised plants of P. serrulata appear to be referable to the Japanese hill cherry (P. serrulata var. spontanea (Maxim.) E. Wilson)."
602	2012. Benitez, D.M. et al.. The distribution of invasive plant species of concern in the Kīlauea & Mauna Loa strip areas of Hawai'I Volcanoes National Park, 2000-2010. Tech. Rep. 179. HCSU & PCSU, University of Hawai`i, Honolulu	[Produces viable seed? Yes] "Since 2000, Japanese flowering cherry trees, saplings and seedlings have been found occasionally in wet forest SEA units in primarily native vegetation. From 2000- 2007, 341 prunus trees, saplings and seedlings were discovered and removed during systematic ground sweeps from Koa (215 ha), Pu'u (155 ha) and Small Tract (144 ha) SEAs in 'Ōla'a wet forest. Mature prunus trees remain along the south boundary fences of Small Tract and Koa units, and on adjacent private pastures."
603	2001. Kirsten, K.. Gardening with Keith Kirsten. Struik Publishers, Cape Town, South Africa	[Hybridizes naturally? Unknown] "Many beautiful hybrids have been developed from this species."
604	2005. Srinivasan, C./Padilla, I.M.G./Scorza, R.. Prunus spp. Almond, Apricot, Cherry, Nectarine, Peach and Plum. Pp 512-542 in Biotechnology of Fruit and Nut Crops. CABI Publishing, Wallingford, UK	[Self-compatible or apomictic? Unknown] "Cherries can be either self-incompatible or self-compatible."
605	2013. Plants for a Future Database. Prunus serrulata. http://www.pfaf.org/user/Plant.aspx?LatinName=Prunus+serrulata [Accessed 05 July 2013]	[Requires specialist pollinators? No] "The flowers are hermaphrodite (have both male and female organs) and are pollinated by Insects."

606	2013. Plants for a Future Database. Prunus serrulata. http://www.pfaf.org/user/Plant.aspx?LatinName=Prunus+serrulata [Accessed 05 July 2013]	[Reproduction by vegetative fragmentation? No. No evidence] "Propagation. Seed - requires 2 - 3 months cold stratification and is best sown in a cold frame as soon as it is ripe[200]. Sow stored seed in a cold frame as early in the year as possible[200]. Protect the seed from mice etc. The seed can be rather slow, sometimes taking 18 months to germinate[113]. Prick out the seedlings into individual pots when they are large enough to handle. Grow them on in a greenhouse or cold frame for their first winter and plant them out in late spring or early summer of the following year. Cuttings of half-ripe wood with a heel, July/August in a frame[11, 200]. Softwood cuttings from strongly growing plants in spring to early summer in a frame[200]. Layering in spring."
607	2013. Shoot Gardening. Prunus 'Taihaku' (Great white cherry). http://www.shootgardening.co.uk/plant/prunus-taihaku [Accessed 06 July 2013]	[Minimum generative time (years)? 10+] "10-20 years to maturity" [This and other varieties of Prunus serrulata reach maturity in 10 or more years]
701	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] "Fr. < 15 mm diam., globose, glabrous, black purple, bitter; stone smooth." [Unlikely, as fruits and seeds lack means of external attachment]
702	2007. Chang, K.-S./Chang, C.-S./Park, T.Y./Roh, M.S.. Reconsideration of the Prunus serrulata complex (Rosaceae) and related taxa in eastern Asia. Botanical Journal of the Linnean Society. 154: 35–54.	[Propagules dispersed intentionally by people? Yes] "Prunus serrulata Lindl., P. jamasakura (Siebold) Koidz., and P. leveilleana Koehne with several infraspecific taxa, and which are widely cultivated as ornamental trees, are here collectively referred to as the P. serrulata complex."
703	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Propagules likely to disperse as a produce contaminant? No] "Fr. < 15 mm diam., globose, glabrous, black purple, bitter; stone smooth." [Unlikely. No evidence, and fruits and seeds relatively large]
704	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Propagules adapted to wind dispersal? No] "Fr. < 15 mm diam., globose, glabrous, black purple, bitter; stone smooth." [Fleshy-fruited]
705	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Propagules water dispersed? No] "Fr. < 15 mm diam., globose, glabrous, black purple, bitter; stone smooth." [No evidence that fruit or seeds are buoyant, and distribution suggests no]
706	1988. Esler, A.E.. The naturalisation of plants in urban Auckland, New Zealand 4. The nature of the naturalised species. New Zealand Journal of Botany. 26(3): 345-385.	[Propagules bird dispersed? Yes] "Thirty-three species have seeds borne by birds mainly as gut seeds (Table 1). It is not known if birds carry whole fruits of Prunus serrulata as bill seeds or regurgitate the stones from the crop."
706	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Propagules bird dispersed? Yes] "Fr. < 15 mm diam., globose, glabrous, black purple, bitter; stone smooth." [Fleshy-fruited]
706	2007. Hatch, C.R.. Trees of the California Landscape. University of California Press, Berkeley and Los Angeles, CA	[Propagules bird dispersed? Yes] "edible, reddish cherries, usually unseen among the foliage, are favored by birds."
707	1988. Esler, A.E.. The naturalisation of plants in urban Auckland, New Zealand 4. The nature of the naturalised species. New Zealand Journal of Botany. 26(3): 345-385.	[Propagules dispersed by other animals (externally)? No] "Thirty-three species have seeds borne by birds mainly as gut seeds (Table 1). It is not known if birds carry whole fruits of Prunus serrulata as bill seeds or regurgitate the stones from the crop." [Seeds are generally swallowed, and either passed through the gut or regurgitated]
708	1988. Webb, C. J./Sykes, W.R./Garnock-Jones, P.J.. Flora of New Zealand, Volume IV: Naturalised pteridophytes, gymnosperms, dicotyledons. Botany Division, DSIR, Christchurch, New Zealand http://FloraSeries.LandcareResearch.co.nz	[Propagules survive passage through the gut? Presumably Yes] "Fr. < 15 mm diam., globose, glabrous, black purple, bitter; stone smooth." [Fleshy-fruited, and presumably adapted for bird or other vertebrate dispersal. Either internally, or after pulp has been consumed and seed regurgitated or discarded]

801	2012. Weedbusters. Wilding Prunus species - February 2012 - Weed of the Month. http://ecan.govt.nz/publications/General/wilding-prunus-species-wom-feb12.pdf	[Prolific seed production (>1000/m2)? No] "Fruit typically red to black although cultivated varieties often do not fruit"
801	2013. Evans, E.. Plant Fact Sheets - Prunus serrulata. North Carolina State University, http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/trees-new/prunus_serrulata.html [Accessed 05 July 2013]	[Prolific seed production (>1000/m2)? No] "Flower/Fruit: White flowers in May; rarely fruits" [Not in North Carolina, and probably not likely in tropical Pacific]
802	2013. Plants for a Future Database. Prunus serrulata. http://www.pfaf.org/user/Plant.aspx?LatinName=Prunus+serrulata [Accessed 05 July 2013]	[Evidence that a persistent propagule bank is formed (>1 yr)? Probably Yes] "The seed can be rather slow, sometimes taking 18 months to germinate[113]." [Likely if seeds take up to 18 months to germinate]
803	2012. Weedbusters. Wilding Prunus species - February 2012 - Weed of the Month. http://ecan.govt.nz/publications/General/wilding-prunus-species-wom-feb12.pdf	[Well controlled by herbicides? Unknown] "For wilding Prunus species, cut stumps near ground level and paint with an appropriate herbicide. After initial control, monitor the site for regrowth for at least two years." [Efficacy of herbicides unknown]
804	2012. Weedbusters. Wilding Prunus species - February 2012 - Weed of the Month. http://ecan.govt.nz/publications/General/wilding-prunus-species-wom-feb12.pdf	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "To help prevent birds spreading Prunus fruit from the home garden or orchard, cover fruiting trees with bird netting. Control suckers by mowing under trees or by pruning them off. Small seedlings can be pulled out by hand. For wilding Prunus species, cut stumps near ground level and paint with an appropriate herbicide. After initial control, monitor the site for regrowth for at least two years." … "Prunus serrulata" … "Produces suckers" [Can produce suckers when cut and if not treated with herbicide]
805	2013. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown] Unlikely in Hawaiian islands

Summary of Risk Traits

High Risk / Undesirable Traits

- Naturalized in New Zealand, and Hawaii Island
- Controlled in New Zealand and Hawaii Volcanoes National Park as an unwanted tree
- Other Prunus species have become invasive
- Unpalatable to deer and possibly other animals
- Parts of plants contain hydrogen cyanide
- Shade tolerant
- Tolerates many soil types
- Can reproduce by seeds which may be bird-dispersed or planted intentionally by people
- May form a persistent seed bank
- Able to sucker

Low Risk / Desirable Traits

- Only thrives at cooler, higher elevations of tropical islands
- Unarmed (no spines, thorns or burrs)
- Reaches maturity in 10+ years
- Certain cultivars may produce few to no seeds
- When produced, fruits and seeds unlikely to be accidentally dispersed
- Landscaping and ornamental value