Family: ***Rosaceae***

Taxon: ***Rubus sieboldii***

Synonym: *Rubus moluccanus sensu Hawaiian botanists,* ***Common Name*** Molucca raspberry

Questionaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** H(HPWRA)

Status: Assessor Approved **Data Entry Person:** Chuck Chimera **WRA Score** 10

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)**	**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**	
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**	**n**
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**	**y**
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**	**n**
406	**Host for recognized pests and pathogens**	**y=1, n=0**	
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**	
409	**Is a shade tolerant plant at some stage of its life cycle**	**y=1, n=0**	
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**	
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**	
607	**Minimum generative time (years)**	**1 year = 1, 2 or 3 years = 0, 4+ years = -1**	
701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	**y=1, n=-1**	
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**	
802	**Evidence that a persistent propagule bank is formed (>1 yr)**	**y=1, n=-1**	
803	**Well controlled by herbicides**	**y=-1, n=1**	
804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	**y=1, n=-1**	
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	**y=-1, n=1**	

Designation: H(HPWRA) **WRA Score** **10**

Supporting Data:

101	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to Japan, southern China, and Okinawa" [Okinawa's climate is subtropical]
202	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to Japan, southern China, and Okinawa."
203	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to Japan, southern China, and Okinawa; in Hawaii cultivated and sparingly naturalized in disturbed areas, ca. 100 m, in Lawai Valley and town of Kilauea, Kauai." [natural distribution from temperate to subtropical climates, and ability to naturalize in Hawaiian Islands suggests environmental versatility]
204	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to Japan, southern China, and Okinawa; in Hawaii cultivated and sparingly naturalized in disturbed areas, ca. 100 m, in Lawai Valley and town of Kilauea, Kauai. First collected in 1970."
205	2011. WRA Specialist. Personal Communication.	No evidence
301	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"...in Hawaii cultivated and sparingly naturalized in disturbed areas, ca. 100 m, in Lawai Valley and town of Kilauea, Kauai. First collected in 1970."
302	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"...naturalized in disturbed areas…" [a disturbance weed with environmental impacts. See 3.04]
302	2011. USDA Natural Resources Conservation Service. Hawaii State-listed Noxious Weeds. http://plants.usda.gov/java/noxious?rptType=State&statefips=15	Listed as a noxious weed for the state of Hawaii [but with no description of impacts in agricultural or natural areas]
303	2007. Randall, R.P.. Global Compendium of Weeds - Rubus sieboldii [Online Database]. http://www.hear.org/gcw/species/rubus_sieboldii/	No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds - Rubus sieboldii [Online Database]. http://www.hear.org/gcw/species/rubus_sieboldii/	environmental weed, naturalised, noxious weed, weed
304	2011. USDA Natural Resources Conservation Service. Hawaii State-listed Noxious Weeds. http://plants.usda.gov/java/noxious?rptType=State&statefips=15	Listed as a noxious weed for the state of Hawaii
305	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	Several Rubus species are weeds of natural areas in Hawaii and around the world.
401	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"stems somewhat scandent, stout, elongate, with scattered prickles with elongate bases and moderately to densely tomentose. Leaves simple, coriaceous, broadly ovate to suborbicular, 6.5-22 cm long, 5-18 cm wide, palmately 5-nerved at base, upper surface with impressed veins, sparsely tomentose when young, glabrate with age, lower surface with conspicuous and somewhat raised veins, densely white to yellowish brown tomentose, also midvein and some lateral veins usually with prickles, margins irregularly sinuate toothed to somewhat lobed, apex rounded, base subcordate, petioles 2-6 cm long, covered with prickles and tomentose. "
402	2011. WRA Specialist. Personal Communication.	Unknown

403	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Robust, rhizomatous shrubs" [not a parasite]
404	2004. Tsujino, R./Yumoto, T.. Effects of sika deer on tree seedlings in a warm temperate forest on Yakushima Island, Japan. Ecological Research. 19: 291–300.	"Table 3 No. individuals (height ≥ 30 cm, d.b.h. < 1 cm) in the study plot (2500 m2) and ratios of deer preference of each species (= no. herbivored individuals over total no. species)" [Rubus sieboldii listed as 24 "not-herbivored" individuals and only 1 as "herbivored", suggesting unpalatability to deer]
405	1997. Hill, D.A.. Seasonal Variation in the Feeding Behavior and Diet of Japanese Macaques (Macaca fuscata yakui) in Lowland Forest of Yakushima. American Journal of Primatology. 43: 305–322.	"APPENDIX. Plant Foods Eaten During Focal Animal Sampling...fb, flower bud; fl, flower; ft, fruit; pi, pith" [several fruit & plant parts eaten by Japanese Macaques with no evidence of toxicity]
406	2011. Plants for a Future Database. Rubus sieboldii. PFAF, http://www.pfaf.org/user/Plant.aspx?LatinName=Rubus+sieboldii	"Plants in this genus are notably susceptible to honey fungus"
406	2011. WRA Specialist. Personal Communication.	Unknown
407	2011. Plants for a Future Database. Rubus sieboldii. PFAF, http://www.pfaf.org/user/Plant.aspx?LatinName=Rubus+sieboldii	No evidence of toxicity to humans, and Rubus genus widely used with no evidence of toxicity
408	2011. WRA Specialist. Personal Communication.	Unknown
409	2011. Plants for a Future Database. Rubus sieboldii. PFAF, http://www.pfaf.org/user/Plant.aspx?LatinName=Rubus+sieboldii	"It can grow in semi-shade (light woodland) or no shade." [potentially shade tolerant]
410	2011. Plants for a Future Database. Rubus sieboldii. PFAF, http://www.pfaf.org/user/Plant.aspx?LatinName=Rubus+sieboldii	"The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and requires well-drained soil. The plant prefers acid, neutral and basic (alkaline) soils."
411	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Robust, rhizomatous shrubs;" [not climbing or smothering]
412	2011. Plants for a Future Database. Rubus sieboldii. PFAF, http://www.pfaf.org/user/Plant.aspx?LatinName=Rubus+sieboldii	"Thickets and cut-over areas in low mountains and hills, C. and S. Japan" [unknown, but prickly Rubus species has potential to form thickets]
501	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Robust, rhizomatous shrubs" [terrestrial]
502	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	Rosaceae
503	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	Rosaceae [Rubus not among genera of Rosaceae capable of nitrogen fixation]
504	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Robust, rhizomatous shrubs" [not a geophyte]
601	2003. Kominami, Y. et al.. Classification of bird-dispersed plants by fruiting phenology, fruit size, & growth form in a primary lucidophyllous forest: an analysis, with implications for the conservation of fruitbird interactions. Ornithol. Sci.. 2: 3–23.	No evidence of substantial reproductive failure in native habitat

602	2003. Kominami, Y. et al.. Classification of bird-dispersed plants by fruiting phenology, fruit size, & growth form in a primary lucidophyllous forest: an analysis, with implications for the conservation of fruitbird interactions. Ornithol. Sci.. 2: 3–23.	Produces viable seed
603	2011. WRA Specialist. Personal Communication.	Unknown
604	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Flowers subsessile, 1 to several in very short, dense, corymbose inflorescences; sepals ovate to elliptic, ca. 12 mm long, densely tomentose, margins toothed or laciniate; petals white, suborbicular, ca. 15 mm long." [self-compatibility unknown]
604	2011. Plants for a Future Database. Rubus sieboldii. PFAF, http://www.pfaf.org/user/Plant.aspx?LatinName=Rubus+sieboldii	"A deciduous Shrub. The flowers are hermaphrodite (have both male and female organs) and are pollinated by Insects." [self-compatibility unknown]
605	2011. Plants for a Future Database. Rubus sieboldii. PFAF, http://www.pfaf.org/user/Plant.aspx?LatinName=Rubus+sieboldii	"A deciduous Shrub. The flowers are hermaphrodite (have both male and female organs) and are pollinated by Insects."
606	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Robust, rhizomatous shrubs" [rhizomatous plants possibly spread vegetatively]
607	2011. WRA Specialist. Personal Communication.	Unknown
701	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"...sparingly naturalized in disturbed areas…" [seeds possibly spread inadvertently]
702	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"cultivated and sparingly naturalized…"
703	2011. WRA Specialist. Personal Communication.	No evidence that this plant is cultivated with commercial produce
704	2003. Kominami, Y. et al.. Classification of bird-dispersed plants by fruiting phenology, fruit size, & growth form in a primary lucidophyllous forest: an analysis, with implications for the conservation of fruitbird interactions. Ornithol. Sci.. 2: 3–23.	"Appendix 2. Traits and abundance of 111 endozoochorous plant species in the Aya Research Site." [Rubus sieboldii adapted for bird & mammal dispersal, not wind]
705	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Fruit red, sweet"
705	2006. Yamashiro, A./Yamashiro, T.. Seed Dispersal by Kerama Deer (Cervus nippon keramae) on Aka Island, the Ryukyu Archipelago, Japan. Biotropica. 38(3): 405–413.	"...adapted to endozoochory by birds and mammals…" [fleshy-fruited, terrestrial plant with no apparent adaptations for water dispersal]
706	2006. Yamashiro, A./Yamashiro, T.. Seed Dispersal by Kerama Deer (Cervus nippon keramae) on Aka Island, the Ryukyu Archipelago, Japan. Biotropica. 38(3): 405–413.	"We found three species with relatively large woody plant seeds—Diospyros japonica, Psidium guajava, and Rubus sieboldii— in fecal samples. These seeds were not damaged during feeding or digestion. The relatively large seeds of Psidium guajava germinated at especially high rates. Although the seeds of Diospyros japonica and Rubus sieboldii did not germinate, they remained hard 8 mo after sowing. In these species, both our germination treatment and the digestive process of kerama deer probably did not break the seed's dormancy. These three relatively large woody seeds have very hard seed coats adapted to endozoochory by birds and mammals. Therefore, the hardness of the seed coat seems to be a more important factor than size in the ability of woody plant seeds to survive feeding and digestion by herbivores."
707	2006. Yamashiro, A./Yamashiro, T.. Seed Dispersal by Kerama Deer (Cervus nippon keramae) on Aka Island, the Ryukyu Archipelago, Japan. Biotropica. 38(3): 405–413.	"...adapted to endozoochory by birds and mammals…" [seeds dispersed internally with no means of external attachment]

708	2006. Yamashiro, A./Yamashiro, T.. Seed Dispersal by Kerama Deer (Cervus nippon keramae) on Aka Island, the Ryukyu Archipelago, Japan. Biotropica. 38(3): 405–413.	"We found three species with relatively large woody plant seeds—Diospyros japonica, Psidium guajava, and Rubus sieboldii— in fecal samples. "
801	2011. WRA Specialist. Personal Communication.	Unknown
802	2006. Yamashiro, A./Yamashiro, T.. Seed Dispersal by Kerama Deer (Cervus nippon keramae) on Aka Island, the Ryukyu Archipelago, Japan. Biotropica. 38(3): 405–413.	"Although the seeds of Diospyros japonica and Rubus sieboldii did not germinate, they remained hard 8 mo after sowing." [potential to perform a long lasting seed bank]
803	2011. WRA Specialist. Personal Communication.	Unknown [no information found on control of this species despite being listed as a noxious weed]
804	2011. WRA Specialist. Personal Communication.	Unknown
805	2011. WRA Specialist. Personal Communication.	Unknown