Family: ***Sapotaceae***

Taxon: ***Sideroxylon persimile***

Synonym: *Bumelia persimilis Hemsl. (basionym)*

Common Name Bully tree
bastard cherry
porcupine tree
corpus blanca
Bebelama
Bumelia

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

Status: Assessor Approved **Data Entry Person:** Chuck Chimera **WRA Score 8**

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**	**y**
204	**Native or naturalized in regions with tropical or subtropical climates**	**y=1, n=0**	**y**
205	**Does the species have a history of repeated introductions outside its natural range?**	**y=-2, ?=-1, n=0**	**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)**	**n**
305	**Congeneric weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**n**
401	**Produces spines, thorns or burrs**	**y=1, n=0**	**y**
402	**Allelopathic**	**y=1, n=0**	**n**
403	**Parasitic**	**y=1, n=0**	**n**
404	**Unpalatable to grazing animals**	**y=1, n=-1**	
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**	**n**

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**	**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**	
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**	**y**
706	**Propagules bird dispersed**	**y=1, n=-1**	**y**
707	**Propagules dispersed by other animals (externally)**	**y=1, n=-1**	**n**
708	**Propagules survive passage through the gut**	**y=1, n=-1**	**y**
801	**Prolific seed production (>1000/m2)**	**y=1, n=-1**	**n**
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** **8**

Supporting Data:

101	2011. WRA Specialist. Personal Communication.	[Is the species highly domesticated? No] No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Species suited to tropical or subtropical climate(s): 2-high] "Distribution. Mexico, Central America to N Colombia, Venezuela and Trinidad"
202	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Quality of climate match data: High] "Distribution. Mexico, Central America to N Colombia, Venezuela and Trinidad"
203	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Broad climate suitability? Yes] "A tree of moist seasonal evergreen forest and lower montane forest, particularly common at 800-2000 m altitude. It is occasionally present at lower altitudes as, for example, in Venezuela. It is recorded from mixed oak-semievergreen forest in S Mexico." [elevation range >1000 m, demonstrating some measure of environmental versatility]
204	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Native or naturalized in regions with tropical or subtropical climates?: Yes] "Distribution. Mexico, Central America to N Colombia, Venezuela and Trinidad"
205	2002. Starr, F./Martz, K./Loope, L.L.. New plant records from the Hawaiian archipelago. Bishop Museum Occasional Papers. 69: 16-27.	[Does the species have a history of repeated introductions outside its natural range? No] "Previously known under the misapplied name Bumelia buxifolia (sensu Neal, 1965) (Staples & Herbst, in press), large trees of Sideroxylon persimile (bully, bumelia) were apparently originally cultivated on Maui near the Mauna'olu Campus (old Baldwin Estate) on Baldwin Avenue, where it was collected as early as 1967. Now this thorny species occurs in gulches and along roadsides from Häliimaile to near Päia. There are also specimens from O'ahu and Länai, mostly from ornamental street trees."
205	2003. Starr, F./Starr, K./Loope, L.L.. Sideroxylon persimile - Bully tree - Sapotaceae. USGS - Biological Resources Haleakala Field Station Maui, www.hear.org/starr/hiplants/reports/pdf/sideroxylon_persimile.pdf	"State of Hawai'i distribution: In Hawai'i, Sideroxylon persimile was recently reported as naturalized on the island of Maui (Starr et al. 2002). There are several records of S. persimile also being cultivated on other Hawaiian Islands. Bishop Museum herbarium records include the following collections from around the state of Hawai'i. O'ahu: Honolulu, Kilihi St., corner at Beckley St., collected in 1925; collected again at this location in 1941; Honolulu, Capitol grounds, near burial mound, collected in 1939; Makiki, at corner Makiki and Kina'u Sts., collected in 1946; Waiahole, Water Reserve, project for reforesting by O'ahu Sugar Co., collected 1962; Waimanalo, on private horse farm, collected 1990. Lana'i: north of Lana'I City, planted in forest reserve, collected in 1952. In addition, Skolmen (1960) lists 2,791 trees planted on the island of O'ahu for what is likely this tree under the misapplied name Bumelia buxifolia. There is also a record of 1 tree planted in South Kona, Hawai'i for Sideroxylon norae, possibly a related species. Neal (1965) reports that there are at least two species in Hawai'i."
301	2002. Starr, F./Martz, K./Loope, L.L.. New plant records from the Hawaiian archipelago. Bishop Museum Occasional Papers. 69: 16-27.	"Sideroxylon persimile (Hemsl.) T.D. Penn. New naturalized record...Material examined: MAUI: E. Maui, cultivated near Mauna'olu College, ca 800 ft, 24 Dec 1967, D. Herbst 820; same loc., planted along Baldwin Ave. and on Mauna'olu campus, 16 Feb 1987, R. Hobdy 2729. E. Maui, Häli'imaile, on east side of gulch bordering pineapple field on east side of town, 1100 ft [335 m], 20 Feb 1998, Starr & Martz 980220-1; E. Maui, Häli'imaile, Mauna'olu Campus, Baldwin Ave., spreading from trees planted in this area, 900 ft [247 m], 27 Apr 2000, Starr & Martz 000427-1. O'AHU: Honolulu, Kalihi St., corner at Beckley St., in fruit, 1 Jun 1925, F.B.H. Brown 1246 (BISH 69020a), same location, in flower, 15 Dec 1925, F.B.H. Brown 1246 (BISH 69020b), same loc., 7 Feb 1941, M.C. Neal s.n. (BISH 419662, 419663); Honolulu, Capitol grounds, near burial mound, 16 Sep 1939, M.C. Neal s.n. (BISH 69021); Makiki, at corner Makiki and Kïna'u Sts., 19 Oct 1946, F.R. Fosberg 27116; Waiähole, Water Reserve, project for reforesting by Oahu Sugar Co., 13 Apr 1962, F. Saito 10 (two sheets); Waimänalo, sterile shrub with long spines growing on private horse farm, 10 Jan 1990, N. Matayoshi s.n. (BISH 580943); LANA'I: north (mauka) of Läna'i City, planted in forest reserve, 2 Mar 1952, O. Degener 21990."
301	2003. Staples, G.W./Imada, C.T./Herbst, D.R.. New Hawaiian plant records for 2001. Bishop Mueseum Occational Papers. 74: 7-21.	"First reported from East Maui and O'ahu (Starr et al., 2002: 24), the following specimen represents the second naturalized collection and a significant range extension for S. persimile. Between 1928 and 1960 over 2,700 plants of bumelia were used in reforesting efforts on O'ahu, mainly in Schofield Barracks, Honouliuli, and 'Ewa (Skolmen, 1980). Plants in the back part of Mäkaha Valley are scattered and apparently the fleshy fruits are dispersed by birds."

301	2003. Starr, F./Starr, K./Loope, L.L.. Sideroxylon persimile - Bully tree - Sapotaceae. USGS - Biological Resources Haleakala Field Station Maui, www.hear.org/starr/hiplants/reports/pdf/sideroxylon_persimile.pdf	"S. persimile occurs on the island of Maui and is cultivated in the Mauna'olu area, about 800 ft (244 m) elevation, where it is locally common and spreading from initial plantings to nearby disturbed areas in open fields, along roads, scrub areas, and gulches from Hali'imaile, 1,100 ft (335 m) elevation, to Paia, 500 ft (152 m) elevation. Recently a second site was found on leeward Maui in Ulupalakua, 1,800 ft (549 m) elevation, where a single large tree and a few small saplings occur. The Ulupalakua site is small enough that it could be controlled to prevent further spread in this area."
302	2003. Starr, F./Starr, K./Loope, L.L.. Sideroxylon persimile - Bully tree - Sapotaceae. USGS - Biological Resources Haleakala Field Station Maui, www.hear.org/starr/hiplants/reports/pdf/sideroxylon_persimile.pdf	[Garden/amenity/disturbance weed? Yes] "S. persimile occurs on the island of Maui and is cultivated in the Mauna'olu area, about 800 ft (244 m) elevation, where it is locally common and spreading from initial plantings to nearby disturbed areas in open fields, along roads, scrub areas, and gulches from Hali'imaile, 1,100 ft (335 m) elevation, to Paia, 500 ft (152 m) elevation. Recently a second site was found on leeward Maui in Ulupalakua, 1,800 ft (549 m) elevation, where a single large tree and a few small saplings occur. The Ulupalakua site is small enough that it could be controlled to prevent further spread in this area."
302	2010. Maui Invasive Species Committee. Meeting Notes June 4, 2010. http://www.hawaiiinvasivespecies.org/iscs/misc/pdfs/miscmeetingminutes20100604.pdf	Previously listed as a priority target plant for eradication by the Maui Invasive Species Committee (MISC). Ability to spread by bird-dispersed fruits, and presence of thorns has led to the categorization of Sideroxylon persimile as an undesirable weed, but one which has yet to have negative impacts on agriculture (3.03) or the environment (3.04).
303	2007. Randall, R.P.. Global Compendium of Weeds - Sideroxylon persimile [Online Database]. http://www.hear.org/gcw/species/sideroxylon_persimile/	[Agricultural/forestry/horticultural weed? No] No evidence to date.
304	2007. Randall, R.P.. Global Compendium of Weeds - Sideroxylon persimile [Online Database]. http://www.hear.org/gcw/species/sideroxylon_persimile/	[Environmental weed? No] Listed as a potential environmental weed, but no evidence of impacts to date.
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? No] No other species of Sideroxylon listed as invasive or weeds
401	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	"Young branches at first finely appressed puberulous or sericeous to densely pubescent with the hairs ferruginous at first, and then greyish with age, becoming glabrous, grey brown, ridged and cracked, often lenticellate. Sharp spines on larger twigs and branches, often several cm long, usually simple, occasionally branched."
401	2001. Felger, R.S./Johnson, M.B./Wilson, M.F.. The trees of Sonora, Mexico. Oxford University Press US, New York, NY	[Produces spines, thorns or burrs?: Yes] "Twigs and branches often spinescent; leaves 5-13.5 cm; corolla lobes each with lateral segments;…"
401	2002. Starr, F./Martz, K./Loope, L.L.. New plant records from the Hawaiian archipelago. Bishop Museum Occasional Papers. 69: 16-27.	[Produces spines, thorns or burrs?: Yes] "Large trees, round-topped to 20 m tall, trunk vertically fluted, 1 m thick, bark rough (ex Fosberg 27116), sometimes armed with painful and irritating thorns (1–3 cm long), with obvious sticky white sap, and stems occasionally bearing red hairs. Leaves dark green, glossy ovate, entire (3–4 cm long)."
402	2011. WRA Specialist. Personal Communication.	[Allelopathic? No] No evidence
403	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Parasitic?: No] "Spinous or unarmed trees or shrubs" [Sideroxylon genus description; Family Sapotaceae]
404	2011. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals?] Unknown, but presence of spines & milky sap may deter browsing.
405	2002. Yetman, D./Van Devender, T.R.. Mayo ethnobotany: land, history, and traditional knowledge in northwest Mexico. University of California Press, Berkeley and Los Angeles, CA	[Toxic to animals? No] "The fruits, similar to those of ca'ja (S. tepicense), ripen in June. They must be cooked so that they will not burn the mouth." [no other evidence of toxicity to humans or animals found]
406	2011. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens?] Unknown
407	2002. Yetman, D./Van Devender, T.R.. Mayo ethnobotany: land, history, and traditional knowledge in northwest Mexico. University of California Press, Berkeley and Los Angeles, CA	[Causes allergies or is otherwise toxic to humans? Unlikely] "The fruits, similar to those of ca`ja (S. tepicense), ripen in June. They must be cooked so that they will not burn the mouth." [only consumption of raw fruit results in problems, but no evidence that "normal" contact with plant is detrimental]

408	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Creates a fire hazard in natural ecosystems? Probably not] "A tree of moist seasonal evergreen forest and lower montane forest, particularly common at 800-2000 m altitude." [distribution in moist tropical forests & riparian habitats suggests that increase fire risks are unlikely]
409	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	[Is a shade tolerant plant at some stage of its life cycle?] "It seems to require no special conditions to thrive in Hawaii; ordinary garden soil, a sunny location, and ample water are all that is necessary." [shade tolerance unknown]
410	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	[Tolerates a wide range of soil conditions? Yes] "It seems to require no special conditions to thrive in Hawaii; ordinary garden soil, a sunny location, and ample water are all that is necessary." [suggests broad tolerance of soil types encountered in Hawaiian Islands]
411	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Climbing or smothering growth habit? No] "subsp. persimile...Tree; pubescence of young leaves and shoots appressed...subsp. subsessiliflorum...Shrub or small tree"
412	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	[Forms dense thickets? No] ""Between 1928 and 1960 a few thousand trees were planted for reforestation, mostly in forest reserves on Oahu…naturalized on Oahu and Maui." [no evidence to date from native or introduced range]
501	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Aquatic? No] Terrestrial tree or shrub
502	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Grass? No] Sapotaceae
503	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Nitrogen fixing woody plant? No] Sapotaceae
504	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Geophyte? No] Tree or shrub, Sapotaceae
601	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Produces viable seed? Yes] "Seed solitary, 0.85-1.5 cm long, ellipsoid, with a rounded or tapering apex; testa hard, smooth and shining, 0.2-0.5 mm thick; scar basi-ventral, 2-4 mm long, usually almost as broad as long; embryo vertical, with planoconvex cotyledons, radicle exserted ca. 1 mm; surrounded by a thin sheath of endosperm."
602	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	"Propagation is usually from seed…"
603	2007. Smedmark, J.E.E./Anderberg , A.A.. Boreotropical migration explains hybridization between geographically distant lineages in the pantropical clade Sideroxyleae (Sapotaceae). American Journal of Botany. 94(9): 1491–1505.	[Hybridizes naturally? Unknown] "Both Argania and Nesoluma are merely apomorphic derivatives with ancestors in Sideroxylon, and Nesoluma is of hybrid origin, descended from two different ancestral lineages within Sideroxylon. The single species of Argania, A. spinosa (L.) Skeels, was actually named Sideroxylon spinosum by Linnaeus in 1753, but for the three species of Nesoluma (N. polynesicum, N. nadeaudii, and N. st.-johnianum) formal recombinations under Sideroxylon are needed."
604	1940. East, E.M.. The distribution of self-sterility in the flowering plants. Proceedings of the American Philosophical Society. 82: 449-518.	[Self-compatible or apomictic? Unknown] "The Sapotaceae, consisting wholly of trees, is a family having hermaphroditic flowers which occasionally become polygamous (Labatia, Sideroxylon, Vitellaria) or unisexual (Diploknema, Omphalocorpum) through abortion. I suspect, through investigations of species in Achras, Calocarpum, Chrysophyllum, Dipholis, Lucuma, Malacantha, Mimusops, and Pouteria, that the entire family is self-fertile, although insect pollinated in the main, and sometimes protogynous." [possibly self-compatible, but no direct evidence found]
605	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Requires specialist pollinators? No] "Flowers bisexual. Sepals five, 2-4 mm long, ovate or broadly lanceolate, acute or obtuse, outside appressed puberulous or less frequently glabrous inside glabrous; often becoming thickened with age. Corolla glabrous, 3-6 mm long, tube 1-1.5 mm long; lobes five, median segment elliptic with rounded or less frequently acute apex, sometimes erose, lateral segments narrowly acute, irregularly cut, 1-2.5 mm long. Stamens five, glabrous; filaments (2-)2.5-4.5 mm long, anthers 1.25-2.25 mm long, lanceolate-sagittate. Staminodes five, (1.75-)2-3(-4) mm long, elliptic to oblong-lanceolate, infolded, margin erose to laciniate or fimbriate, erect and applied to style, glabrous. Ovary short, ovoid or flat-topped, (4-)5(-8)-locular, strigose around base or glabrous; style (2.5-)3-7 mm long after anthesis, glabrous; style head simple." [floral structure not highly specialized]

605	2010. Dohzono, I./Yokoyama, J.. Impacts of alien bees on native plant-pollinator relationships: A review with special emphasis on plant reproduction. Applied Entomology and Zoology. 45(1): 37-47.	"Interference between native and alien pollinators occurs in the pollination systems of two endemic Mauritian trees, Sideroxylon cinereum and S. puberulum (Sapotaceae). These trees are pollinated by two endemic white-eyes, Zosterops borbonicus mauritianus and Z. chloronothos, and by introduced honeybees (Hansen et al., 2002; Table 1). Honeybees are less efficient pollinators; exclusion of white-eyes, but not honeybees, resulted in a significantly lower fruit set (Hansen et al., 2002)." [other Sideroxylon species are pollinated by birds and honeybees]
606	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	[Reproduction by vegetative fragmentation? No] "Propagation is usually from seed, although cuttings might be tried." [no evidence of spread by vegetative fragments]
607	2011. WRA Specialist. Personal Communication.	[Minimum generative time (years)?] Unknown. No information found on growth rates or time to reproductive maturity.
701	2003. Starr, F./Starr, K./Loope, L.L.. Sideroxylon persimile - Bully tree - Sapotaceae. USGS - Biological Resources Haleakala Field Station Maui, www.hear.org/starr/hiplants/reports/pdf/sideroxylon_persimile.pdf	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Possibly] "Now this thorny species occurs in gulches and along roadsides from Häliʻimaile to near Päʻia." [pattern of distribution and spread suggests fruits & seeds, although relatively large & without means of external attachment, could be dispersed unintentionally along roadways by vehicles, soil contamination etc.]
702	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	"The wood is used locally (Mexico) for tool handles, and the ripe fruit is edible."
702	2002. Starr, F./Martz, K./Loope, L.L.. New plant records from the Hawaiian archipelago. Bishop Museum Occasional Papers. 69: 16-27.	[Propagules dispersed intentionally by people? Yes] "The species has been used as a street tree in Honolulu and has been planted for reforestation. To focus efforts in better understanding the biology of S. persimile as a naturalized species, we include all voucher specimens examined. We hope these locality data will assist field collectors and managers in identifying the places where this tree is likely to be escaping from cultivation. Material examined: MAUI: E. Maui, cultivated near Maunaʻolu College, ca 800 ft, 24 Dec 1967, D. Herbst 820; same loc., planted along Baldwin Ave. and on Maunaʻolu campus, 16 Feb 1987, R. Hobdy 2729. E. Maui, Häliimaile, on east side of gulch bordering pineapple field on east side of town, 1100 ft [335 m], 20 Feb 1998, Starr & Martz 980220-1; E. Maui, Häliimaile, Maunaʻolu Campus, Baldwin Ave., spreading from trees planted in this area, 900 ft [247 m], 27 Apr 2000, Starr & Martz 000427-1. OʻAHU: Honolulu, Kalihi St., corner at Beckley St., in fruit, 1 Jun 1925, F.B.H. Brown 1246 (BISH 69020a), same location, in flower, 15 Dec 1925, F.B.H. Brown 1246 (BISH 69020b), same loc., 7 Feb 1941, M.C. Neal s.n. (BISH 419662, 419663); Honolulu, Capitol grounds, near burial mound, 16 Sep 1939, M.C. Neal s.n. (BISH 69021); Makiki, at corner Makiki and Kïnau Sts., 19 Oct 1946, F.R. Fosberg 27116; Waiähole, Water Reserve, project for reforesting by Oahu Sugar Co., 13 Apr 1962, F. Saito 10 (two sheets); Waimänalo, sterile shrub with long spines growing on private horse farm, 10 Jan 1990, N. Matayoshi s.n. (BISH 580943); LANAʻI: north (mauka) of Länai City, planted in forest reserve, 2 Mar 1952, O. Degener 21990."
702	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	"…occasionally planted as a street tree in Hawaii…Between 1928 and 1960 a few thousand trees were planted for reforestation , mostly in forest reserves on Oahu."
703	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Propagules likely to disperse as a produce contaminant? No] ""Seed solitary, 0.85-1.5 cm long, ellipsoid, with a rounded or tapering apex; testa hard, smooth and shining, 0.2-0.5 mm thick; scar basi-ventral, 2-4 mm long, usually almost as broad as long; embryo vertical, with planoconvex cotyledons, radicle exserted ca. 1 mm; surrounded by a thin sheath of endosperm." [seeds fairly large, & unlikely to inadvertently contaminate produce.]
704	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Propagules adapted to wind dispersal? No] "Fruit 1.2-2 cm long, ellipsoid or broadly oblong, apex and base rounded to truncate, smooth, glabrous; pericarp 2-4 mm thick, fleshy. Seed solitary, 0.85 1.5 cm long, ellipsoid, with a rounded or tapering apex; testa hard, smooth and shining, 0.2-0.5 mm thick" [fleshy-fruited, with no adaptations for wind dispersal]
705	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	"occurring along watercourses in tropical dwarf deciduous forest"
705	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	"…S. persimile grows in moist forests along watercourses in seasonally dry forests." [propagules likely to be dispersed by water due to distribution along riparian areas]

705	2006. O'Brien, C./Flesch, A.D./Wallace, E./Bogan, M./Carrillo-Percástegui, S.E./Jacobs, S./van Riper III, C.. Biological Inventory of the Rio Aros, Sonora, Mexico: A River Unknown. Final Report to T&E, Inc.. University of Arizona, Tucson, AZ	[Propagules water dispersed? Probably yes] "Sideroxylon persimile was locally common in riparian vegetation in the upper portion of the Aros river corridor and not found above 650 m...The largest and tallest stands of S. persimile were in Canyon Los Lobos, where it reached heights of >15 m and dominated the canopy along with Plantanus racemosa that was rare along the upper river corridor." [distribution along riparian corridors suggests that dispersal of propagules by water may be possible]
706	2002. Starr, F./Martz, K./Loope, L.L.. New plant records from the Hawaiian archipelago. Bishop Museum Occasional Papers. 69: 16-27.	[Propagules bird dispersed? Yes] "Fruit is round to subglobose, about 1 cm, and green turning black or deep blue with maturity during June-July (ex Brown 1246, sheet 69020a). Fruits eaten by birds (ex Neal s.n.)."
707	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Propagules dispersed by other animals (externally)? No] "Seed solitary, 0.85-1.5 cm long, ellipsoid, with a rounded or tapering apex; testa hard, smooth and shining, 0.2-0.5 mm thick; scar basi-ventral, 2-4 mm long, usually almost as broad as long; embryo vertical, with planoconvex cotyledons, radicle exserted ca. 1 mm; surrounded by a thin sheath of endosperm." [no means of external attachment]
708	2002. Starr, F./Martz, K./Loope, L.L.. New plant records from the Hawaiian archipelago. Bishop Museum Occasional Papers. 69: 16-27.	[Propagules survive passage through the gut? Yes] "Fruit is round to subglobose, about 1 cm, and green turning black or deep blue with maturity during June-July (ex Brown 1246, sheet 69020a). Fruits eaten by birds (ex Neal s.n.)." [bird-dispersed species are assumed to have seeds capable of surviving gut passage]
801	1990. Pennington, T.D.. Sapotaceae. Flora Neotropica. 52: 1-770.	[Prolific seed production (>1000/m2)? No] "Seed solitary, 0.85-1.5 cm long, ellipsoid, with a rounded or tapering apex; testa hard, smooth and shining, 0.2-0.5 mm thick; scar basi-ventral, 2-4 mm long, usually almost as broad as long; embryo vertical, with planoconvex cotyledons, radicle exserted ca. 1 mm; surrounded by a thin sheath of endosperm."
802	2011. WRA Specialist. Personal Communication.	[Evidence that a persistent propagule bank is formed (>1 yr)?] Unknown. No information found on soil seed longevity.
803	2003. Starr, F./Starr, K./Loope, L.L.. Sideroxylon persimile - Bully tree - Sapotaceae. USGS - Biological Resources Haleakala Field Station Maui, www.hear.org/starr/hiplants/reports/pdf/sideroxylon_persimile.pdf	[Well controlled by herbicides? Unknown] "Chemical control: Uncertain, though herbicide methods such as frill and basal bark applications could be tested."
804	2011. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire?] Unknown
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)?] Unknown