

Taxon: Camposperma brevipetiolatum Volkens	Family: Anacardiaceae
Common Name(s): camposperma Solomon Islands maple	Synonym(s): Camposperma brassii Merr. & <i>Camposperma brevipetiolata</i> Volkens

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 24 Sep 2019
WRA Score: 4.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Tropical Tree, Disturbance-adapted, Dense Stands, Rapid Growth, Bird-Dispersed

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	n
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	n
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		
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	y
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	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		
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)		
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	n
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
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	[No evidence of domestication] "C. brevipetiolatum is a major commercial timber species in Papua New Guinea and the Solomon Islands, and may form almost pure stands in swamp forests in these countries, or lowland forests in Micronesia (Schmid, 1989; Chaplin, 1993; Soerianegara and Lemmens, 1993). The wood is used for structural grade plywood, and light general-purpose applications. Approximately 9,300 ha of plantations have been established in the Solomon Islands. Planting of C. brevipetiolatum ceased in 1988 due to difficulties in producing quality nursery stock, resulting in poor stem form and short bole length in plantations (Chaplin, 1993; Iputu, 1996). In the Solomon Islands research needs include silvicultural practices, thinning regimes, monitoring for pests and diseases, evaluation of plantation material, and further work on growth and yield models (Chaplin, 1993)."

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"	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Sep 2019]	"Native Asia-Tropical PAPUASIA: Papua New Guinea, Solomon Islands MALESIA: Indonesia [Sulawesi, Maluku] Pacific NORTHWESTERN PACIFIC: Micronesia"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Sep 2019]	

Qsn #	Question	Answer
203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"C. brevipetiolatum is confined to the humid, lowland tropics. The species is mostly found at elevations below 350 m, rarely extending to about 600-1000 m. Annual rainfall is very high at all localities (2000-5000 mm), distributed rather evenly throughout the year or somewhat peaked at various periods, and generally with no dry season. Temperatures are high throughout the year with little seasonal or diurnal variation. The mean annual temperature is 23-28°C, the maximum for the hottest month is in the range 28-34°C, and mean minimum for the coolest month 20-24°C. The absolute minimum temperature experienced is about 15-21°C. Parts of the distribution occasionally experience strong to gale force winds associated with tropical depressions."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"C. brevipetiolatum has a wide distribution in the Western Pacific (Whitmore, 1966; Marten, 1980; Chaplin, 1993; Anon, 1976; Sheely and Meagher, 1996). It occurs naturally in the Moluccas, Sulawesi, New Guinea, the Bismark archipelago, the Solomon Islands, and Micronesia. It is widely distributed in the Solomon Islands, except for Guadalcanal and Makira, and reaching the Santa Cruz group in the south-eastern limit of its range. In the northern part of its distribution C. brevipetiolatum is widespread in south-west Micronesia, including the islands of Palau (Republic of Palau), and Yap, Pohnpei and Kosrae (Federated States of Micronesia)."

205	Does the species have a history of repeated introductions outside its natural range?	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"C. brevipetiolatum is not known to have been planted outside of its natural range, although it has been postulated that populations in the Eastern Caroline Islands (Pohnpei and Kosrae) may have been an ancient introduction from Melanesia (Sheely and Meagher, 1996)."

301	Naturalized beyond native range	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	Wagner, W.L., Herbst, D.R. & Lorence, D.H. (2019). Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/ . [Accessed 23 Sep 2019]	No evidence to date

302	Garden/amenity/disturbance weed	n
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Qsn #	Question	Answer
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	[Disturbance-adapted pioneer tree, suggesting potential for weediness. Also susceptible to wind-throw, which could potentially cause issues with building and infrastructure] "The species regenerates following disturbance, in gaps in high forest, in the open or in association with pioneer species such as <i>Macaranga</i> , eventually often becoming the pre-dominant canopy species in such secondary regrowth forests (Whitmore, 1966; Marten, 1980)." ... "Trees up to 10 m height are considered to be wind-firm but in mature, natural forest <i>C. brevipetiolatum</i> is one of the most susceptible trees to wind-throw (Whitmore, 1974; Chaplin, 1993)."
	Hewson, K. I. (2001). The role of advance growth in upland rainforest restoration, Pohnpei, Federated States of Micronesia. PhD Dissertation. University of Canterbury, Christchurch, New Zealand	[Not regarded as a weed, but potential to break, snap or uproot in wind may be a nuisance or hazard to humans and infrastructure] "Table 6.1 Notes for each disturbance type." [<i>Camposperma</i> reported to be a common cause of forest disturbance through Fallen branches, Uprooted/wind-thrown trees, and Blown tops/snapped trees]
	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
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

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

401	Produces spines, thorns or burrs	n
	Source(s)	Notes

Qsn #	Question	Answer
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	[No evidence] "C. brevipetiolatum develops into a large tree, typically 35-40 cm in height and 100 cm in diameter, with the biggest trees attaining diameters of 160 cm above buttresses. Clear bole length can be up to 25 m, but is usually 13-20 m. The trunk commonly divides into several large, slightly tapering and sometimes leaning or bent, upwardly-pointing candelabra-like limbs, each limb with a sub-crown. Crowns are large and more or less flat-topped. Buttresses are low and rounded, spreading along the ground some distance from the tree, creamy yellow with large pale lenticels. The bark is cream to fawn, grey, and usually smooth. (Whitmore, 1966; Marten, 1980; Chaplin, 1993). The foliage is diffuse, with leaves borne alternately, and arranged in tight spiral clusters near the branch ends (Whitmore, 1966; Johns, 1975). Blade obovate-oblongate, large (up to 60 x 15 cm), leathery, glabrous, medium glossy green above and yellow-green below. Leaves have a very short petiole which is winged with a distinct small lobe on each side of the base."

402	Allelopathic	
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[Unknown if ability to form monotypic stands is related to allelopathic chemicals or competitive ability of trees, or some combination of traits] "C. brevipetiolatum may form near monotypic stands in swampy, lowland forests in Papua New Guinea and the Solomon Islands, and also in lowland forests in Micronesia (Whitmore, 1966; Havel, 1972; Schmid, 1989; Chaplin, 1993). On alluvial sites and in swamps of the Solomon islands the species is often mixed with <i>Terminalia brassii</i> . In other areas it is found in association with <i>Calophyllum vitiense</i> , <i>Calophyllum peekelii</i> and <i>Dillenia salomonensis</i> , or with <i>Agathis macrophylla</i> (Santa Cruz Islands) (Marten, 1980; Chaplin, 1993)."

403	Parasitic	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"C. brevipetiolatum develops into a large tree, typically 35-40 cm in height and 100 cm in diameter, with the biggest trees attaining diameters of 160 cm above buttresses." [Anacardiaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	Ismail, D., & Jiwan, D. (2015). Browsing preference and ecological carrying capacity of sambar deer (<i>Cervus unicolor brookei</i>) on secondary vegetation in forest plantation. <i>Animal Science Journal</i> , 86(2), 225-237	"Table 3 Summary of plant species browsed by sambar deer inside Paddocks 1 and 2 (4 ha each) using nine plots of 10 m × 10 m as representative habitats to monitor deer browsing behavior" [Unknown for <i>C. brevipetiolatum</i> . In this study, the related species <i>Camposperma auriculate</i> occurs in the forest, but is not documented among the list of species browsed by sambar deer]

Qsn #	Question	Answer
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[Palatability unknown, but fodder not listed among uses] "USES Land use, environmental and service aspects The species has good potential for replanting and environmental rehabilitation of deforested swampy sites in the humid tropics."

405	Toxic to animals	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"The seeds are dispersed by birds and possibly bats." [No reports of toxicity to animals]
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Generic description. No evidence of toxicity to animals] "Polygamodioecious trees with Terminalia-branching, often trunk buttressed or with stilt roots, and with contact dermatitis-causing exudate."

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Ambleypelta cocophaga, a coreid bug, is a serious pest of young plants (6-18 months old) causing dieback of the leading shoot and young leaves (Bigger, 1982). Establishment of the species under shade and open up of lines when trees are 4-5 m tall would be beneficial, but difficult to manage silviculturally (Marten, 1980; Bigger, 1982; Chaplin, 1993). Other insect pests on Camposperma at Kolombangara (Solomon islands) include Eucrocoris sp.; Dromaeolus sp. and Pterolophia sp. (Bigger, 1982). Also in the Solomon Islands borer holes (unidentified species) have been seen in the pith of young seedlings (Marten, 1980)."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Falanruw, M. V. C. (2015). Trees of Yap: A Field Guide. Gen Tech. Rep. PSW-GTR-249. USDA Forest Service, Pacific Southwest Research Station, Hilo, HI:	"Source of parasiticial tigasco skin oil in Papua." [Medicinal use. No description of dermatitis from oil application to skin]
	Kubitzki, K. (ed.). 2011. The Families and Genera of Vascular Plants. Vol. X. Flowering Plants. Eudicots: Sapindales, Cucurbitales, Myrtaceae. Springer, New York	[Generic description] "Polygamodioecious trees with Terminalia-branching, often trunk buttressed or with stilt roots, and with contact dermatitis-causing exudate."
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Medicinal uses. Other species identified as causing dermatitis, but no such description exists for Camposperma brevipetiolatum] "Oil, mixed with soot, an application to the body in order to give protection from lice and fleas. Antiplasmodial, leishmanicidal and antitypanosomal."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes

Qsn #	Question	Answer
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[No evidence. Occurs in wet, humid areas, but if drought did occur, monotypic stands might be prone to fire] "Climate: C. brevipetiolatum is confined to the humid, lowland tropics. The species is mostly found at elevations below 350 m, rarely extending to about 600-1000 m. Annual rainfall is very high at all localities (2000-5000 mm), distributed rather evenly throughout the year or somewhat peaked at various periods, and generally with no dry season."

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[More shade-tolerant than many other pioneer species] "C. brevipetiolatum is a strong light-demander, although it is considered more shade-tolerant than many other pioneer species. Plants may regenerate in small forest gaps such as those created by an occasional windfall (Whitmore, 1966). The species regenerates both within the forest matrix, and also in highly disturbed areas such as roadsides, and at the edge of forest clearings, after logging or widespread cyclone damage (Whitmore, 1974; Marten, 1980; Chaplin, 1993)."
	Hewson, K. I. (2001). The role of advance growth in upland rainforest restoration, Pohnpei, Federated States of Micronesia. PhD Dissertation. University of Canterbury, Christchurch, New Zealand	[Tolerates shade at early stages of growth, but will not survive to maturity without tree fall gaps or forest disturbance that will increase light levels] "Although it can recruit in low-moderate light levels common in MPF and GPF, only in large gaps can <i>Camposperma</i> survive and grow through the juvenile stages. These characteristics strongly suggest that the species regenerates, and probably dominates initially, after huge-scale disturbances such as typhoons, as it does in the Solomon Islands (Whitmore 1974)."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"The species is normally found on deep volcanic clay soils, occurring only infrequently on thin soils overlying coral, on alluvial sites (Marten, 1980). The species has a reasonably wide edaphic tolerance, although soils with a light to medium texture, acidic in reaction and seasonally waterlogged are considered to be the most suitable (Webb et al., 1980). Soil descriptors - Soil texture: light; medium; heavy - Soil drainage: free; seasonally waterlogged - Soil reaction: acid; neutral - Soil types: alluvial soils; clay soils; limestone soils; volcanic soils"

Qsn #	Question	Answer
411	Climbing or smothering growth habit	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"C. brevipetiolatum develops into a large tree, typically 35-40 cm in height and 100 cm in diameter, with the biggest trees attaining diameters of 160 cm above buttresses."

412	Forms dense thickets	y
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"C. brevipetiolatum may form near monotypic stands in swampy, lowland forests in Papua New Guinea and the Solomon Islands, and also in lowland forests in Micronesia (Whitmore, 1966; Havel, 1972; Schmid, 1989; Chaplin, 1993)."
	Mueller-Dombois, D. & Fosberg, F. R. 1998. Vegetation of the tropical Pacific islands. Springer-Verlag, New York, NY	"While the multispecies rain forest is most widespread in the Solomon Islands, there are also some lowland rain forest areas that support low-diversity forests. According to Hansell and Wall (1976-79), forests dominated by <i>Camposperma brevipetiolata</i> occur on Santa Isabel, New Georgia, and Choiseul. Some of them are almost monospecific forests, while others support <i>Dillenia</i> as a codominant."

501	Aquatic	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	[Terrestrial] "C. brevipetiolatum may form near monotypic stands in swampy, lowland forests in Papua New Guinea and the Solomon Islands, and also in lowland forests in Micronesia (Whitmore, 1966; Havel, 1972; Schmid, 1989; Chaplin, 1993). On alluvial sites and in swamps of the Solomon islands the species is often mixed with <i>Terminalia brassii</i> . In other areas it is found in association with <i>Calophyllum vitiense</i> , <i>Calophyllum peekelii</i> and <i>Dillenia salomonensis</i> , or with <i>Agathis macrophylla</i> (Santa Cruz Islands) (Marten, 1980; Chaplin, 1993)."

502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Sep 2019]	Family: Anacardiaceae Subfamily: Anacardioideae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Sep 2019]	Family: Anacardiaceae Subfamily: Anacardioideae

Qsn #	Question	Answer
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"C. brevipetiolatum develops into a large tree, typically 35-40 cm in height and 100 cm in diameter, with the biggest trees attaining diameters of 160 cm above buttresses. Clear bole length can be up to 25 m, but is usually 13-20 m."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	[No evidence] "C. brevipetiolatum has a wide distribution in the Western Pacific (Whitmore, 1966; Marten, 1980; Chaplin, 1993; Anon, 1976; Sheely and Meagher, 1996). It occurs naturally in the Moluccas, Sulawesi, New Guinea, the Bismark archipelago, the Solomon Islands, and Micronesia. It is widely distributed in the Solomon Islands, except for Guadalcanal and Makira, and reaching the Santa Cruz group in the south-eastern limit of its range. In the northern part of its distribution C. brevipetiolatum is widespread in south-west Micronesia, including the islands of Palau (Republic of Palau), and Yap, Pohnpei and Kosrae (Federated States of Micronesia)."

602	Produces viable seed	y
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"A full account of seed collection, handling and storage is given in Chaplin (1988). Collecting seed from the progressively ripening crop has proven tedious. Only purple berries should be collected, and care should be taken to remove the pericarp from around the seed without damaging its viability. C. brevipetiolatum seed appears to behave in an orthodox manner, with seeds being able to be successfully stored for long periods under cool storage (3°C) at moisture content 8% (Chaplin, 1993). Fully developed seed has been successfully germinated broadcast on a seed bed of coarsely sieved soil. Seed is sown on sieved top soil and remains uncovered in a germination bed, germination commences 5-15 days after sowing and may continue for three weeks; seedlings are ready for pricking-out when they have developed two or more true leaves."

603	Hybridizes naturally	
	Source(s)	Notes
	Kubitzki, K. (ed.). 2011. The Families and Genera of Vascular Plants. Vol. X. Flowering Plants. Eudicots: Sapindales, Cucurbitales, Myrtaceae. Springer, New York	[Unknown. No evidence of hybrids found] "Thirteen or more species: two from Honduras to northwest Ecuador and Amazonia; eleven or more in Madagascar (4+), the Seychelles (1), Sri Lanka (1), southeast Asia, Malesia, Micronesia, and Melanesia."

604	Self-compatible or apomictic	y
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Qsn #	Question	Answer
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"The species is polygamodioecious with male, female and hermaphroditic flowers on the same plant (Engler, 1896)."
	Sheely, D., & Meagher, T. (1996). Genetic Diversity in Micronesian Island Populations of the Tropical Tree <i>Camposperma brevipetiolata</i> (Anacardiaceae). American Journal of Botany, 8(12), 1571-1579	[Genetic study suggests inbreeding occurs, and that pollinators likely forage within the canopy of individual trees, promoting self-pollination] "Wright's F statistics, the measures of genetic diversity among populations and subpopulations, indicate genetic substructuring in <i>C. brevipetiolata</i> . Estimates of <i>Fit</i> and <i>Fis</i> are higher than those reported in the literature for a variety of tree species (Linhart et al., 1981; Guries and Ledig, 1982; Yacine and Lumaret, 1989; Diebel and Feret, 1991; Ying and Morgenstern, 1991; Alvarez-Buylla and Garay, 1994). For example, mean <i>Fit</i> = 0.061 and mean <i>Fis</i> = 0.034 were measured in the wind-pollinated, tropical, pioneer tree <i>Cecropia obtusifolia</i> (Alvarez-Buylla and Garay, 1994) in Mexico. The same statistics estimated for <i>C. brevipetiolata</i> are considerably higher, which was expected since the spatial patchiness of island populations is predicted to promote inbreeding and genetic subdivision. Also, <i>Cecropia obtusifolia</i> is wind pollinated and distances between populations are relatively small, resulting in high outcrossing among populations, while <i>C. brevipetiolata</i> is probably pollinated by small insects and large distances separate island populations. The pollinators of <i>C. brevipetiolata</i> may also contribute to the nonrandom mating detected within subpopulations of islands. Mature <i>C. brevipetiolata</i> individuals are large, reaching up to 40 m in height with spreading crowns containing thousands of flowers. It seems likely that small pollinators would restrict their movements to within the crown of a single tree while foraging, resulting in the observed genetic substructuring."

605	Requires specialist pollinators	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"The flowers are very small and greenish-yellow, 4-merous, and borne in large axillary panicles (Johns, 1975; Marten, 1980). The flowers produce nectar and the pollinators are thought to be small, generalist insect pollinators (Sheely and Meagher, 1996)."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"The species is not able to regenerate by coppicing (Chaplin, 1993)." ... "Stand establishment using natural regeneration; planting stock; wildings" [No evidence of vegetative reproduction]

Qsn #	Question	Answer
607	Minimum generative time (years)	3
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"In plantations early growth is rapid, e.g. 3 m height and 4 cm d.b.h. per year during the first 3-4 years, with plants reaching about 20 m height and 30 cm d.b.h. per year at 11 years of age (Iputu, 1996)." [Presumably able to rapidly reach maturity due to rapid growth rate]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Fruits are a small, round fleshy drupe (approximately 5 mm across); green turning dark reddish/purple when fully ripe, and containing a large stone (Whitmore, 1974; Whitmore, 1966; Sheely and Meagher, 1996). Seeds are dispersed by birds and possibly bats (Whitmore, 1974)." [No evidence. No means of external attachment]

702	Propagules dispersed intentionally by people	
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	" <i>C. brevipetiolatum</i> is not known to have been planted outside of its natural range, although it has been postulated that populations in the Eastern Caroline Islands (Pohnpei and Kosrae) may have been an ancient introduction from Melanesia (Sheely and Meagher, 1996)." [No evidence, but proposed for introduction outside native range]

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[No evidence. Unlikely given relatively large fruit and seed size] "Fruits are a small, round fleshy drupe (approximately 5 mm across); green turning dark reddish/purple when fully ripe, and containing a large stone (Whitmore, 1974; Whitmore, 1966; Sheely and Meagher, 1996). Seeds are dispersed by birds and possibly bats (Whitmore, 1974)."

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Fruits are a small, round fleshy drupe (approximately 5 mm across); green turning dark reddish/purple when fully ripe, and containing a large stone (Whitmore, 1974; Whitmore, 1966; Sheely and Meagher, 1996). Seeds are dispersed by birds and possibly bats (Whitmore, 1974)."

705	Propagules water dispersed	y
	Source(s)	Notes

Qsn #	Question	Answer
	Scott, D.A. (ed.) (1993). A Directory of Wetlands in Oceania. IWRB, Slimbridge, U.K. and AWB, Kuala Lumpur, Malaysia	[Occurrence in permanently flooded habitat suggests water is likely an important secondary disperser of the otherwise bird-dispersed seeds] "Camposperma swamp forest: The densest stands of Camposperma (<i>C. brevipetiolata</i> and <i>C. coriace</i>) are found in permanently flooded backswamps. Sago may form a dense understorey." ... "Terminalia swamp forest: This type is mainly found in North Solomons Province, where <i>Terminalia brassii</i> grows together with <i>Camposperma</i> spp. and locally dominates in the canopy of open swamp forest. It is found in low-lying, frequently flooded, bouldery and sandy rivers and peat swamps with flowing waters."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[Occurrence in riparian forests and swamps suggests water likely facilitates seed dispersal, in addition to birds and other frugivores] "Vegetation types: riparian forests; secondary forests; swamps"

706	Propagules bird dispersed	y
	Source(s)	Notes
	Falanruw, M. V. C. (2015). Trees of Yap: A Field Guide. Gen Tech. Rep. PSW-GTR-249. USDA Forest Service, Pacific Southwest Research Station, Hilo, HI:	"Fruit eaten and transported by birds; a timber species with some potential as it grows readily in forest gaps and open areas."
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"Fruits are a small, round fleshy drupe (approximately 5 mm across); green turning dark reddish/purple when fully ripe, and containing a large stone (Whitmore, 1974; Whitmore, 1966; Sheely and Meagher, 1996). Seeds are dispersed by birds and possibly bats (Whitmore, 1974)."

707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	Meyer, J. Y., & Butaud, J. F. 2009. The impacts of rats on the endangered native flora of French Polynesia (Pacific Islands): drivers of plant extinction or coup de grâce species?. <i>Biological invasions</i> , 11(7): 1569-1585	"In Pohnpei, Pacific rats were observed in the rainforest damaging the endemic trees <i>Parinarium glaberrimum</i> , Rosaceae, <i>Elaeocarpus carolinensis</i> , Elaeocarpaceae, and <i>Camposperma brevipetiolata</i> , Anacardiaceae (Storer 1962), the fruits of the last two species being "eaten extensively by rats" (p. 55)." [Both fruit and seeds are consumed. Rodents sometime disperse seeds away from parent trees after transporting and consuming pulp and discarding seeds]

Qsn #	Question	Answer
708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Wiles, G. J., & Fujita, M. S. (1992). Food plants and economic importance of flying foxes on Pacific islands. Biological Report, 90, 24-35	"Table. Known food plants of Pteropus and other flying foxes in the tropical Pacific region. Products that islanders derive from these plants are listed only for the island groups where this information is known." [Camposperma brevipetiolata - Fruit consumed by Pteropus mariannus and seeds presumably dispersed internally or externally after fruit are carried away]
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	[Presumably Yes] "Fruits are a small, round fleshy drupe (approximately 5 mm across); green turning dark reddish/purple when fully ripe, and containing a large stone (Whitmore, 1974; Whitmore, 1966; Sheely and Meagher, 1996). Seeds are dispersed by birds and possibly bats (Whitmore, 1974)."

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Hewson, K. I. (2001). The role of advance growth in upland rainforest restoration, Pohnpei, Federated States of Micronesia. PhD Dissertation. University of Canterbury, Christchurch, New Zealand	"In summary, Camposperma dominates the seed rain and soil seed bank in MPF," [Seed densities unspecified]
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"In the Solomon Islands and Micronesia the species can flower at any time during the year, while mature fruits have been collected between October and March (Marten, 1980; Thomson, 1981, Chaplin, 1993; Sheely and Meagher, 1996)." ... "A further disadvantage is the difficulty of collecting of processing large quantities of viable seed." [Seed densities unknown, but probably not in excess of 1000 per m2]

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"C. brevipetiolatum seed appears to behave in an orthodox manner, with seeds being able to be successfully stored for long periods under cool storage (3°C) at moisture content 8%."
	Hewson, K. I. (2001). The role of advance growth in upland rainforest restoration, Pohnpei, Federated States of Micronesia. PhD Dissertation. University of Canterbury, Christchurch, New Zealand	[Speculated to have a persistent seed bank, but longevity unspecified] "Camposperma was the most common forest-seed-bank species, contributing 35 % of all seeds in the closed-forest seed bank (Gardner 1997). The seeds are small with a hard endocarp, traits commonly associated with persistent seed bank regenerators (ibid.)."

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

Qsn #	Question	Answer
804	Tolerates, or benefits from, mutilation, cultivation, or fire	n
	Source(s)	Notes
	CAB International. (2013). The CABI Encyclopedia of Forest Trees. CABI Publishing, Wallingford, UK	"The species cannot regenerate after coppicing."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[Unknown if any pests or pathogens are present in the Hawaiian Islands] "Ambleypelta cocophaga, a coreid bug, is a serious pest of young plants (6-18 months old) causing dieback of the leading shoot and young leaves (Bigger, 1982). Establishment of the species under shade and open up of lines when trees are 4-5 m tall would be beneficial, but difficult to manage silviculturally (Marten, 1980; Bigger, 1982; Chaplin, 1993). Other insect pests on Camposperma at Kolombangara (Solomon islands) include Eucerochoris sp.; Dromaeolus sp. and Pterolophia sp. (Bigger, 1982). Also in the Solomon Islands borer holes (unidentified species) have been seen in the pith of young seedlings (Marten, 1980)."

Summary of Risk Traits:

High Risk / Undesirable Traits

- Thrives in tropical climates
- Susceptible to wind-throw; could become hazardous to humans and/or infrastructure
- Genus reported to have “contact dermatitis-causing exudate”, although direct evidence for *C. brevipetiolatum* is lacking
- Tolerates shade at early stages of growth, but requires increased light to reach mature size
- Tolerates many soil types
- Capable of forming monotypic stands within native range
- Reproduces by seed
- Genetic studies indicate trees are likely self-compatible
- Reaches maturity in 3+ years
- Seeds dispersed by birds, bats, and secondarily by water
- Seeds may form a persistent seed bank (longevity unknown)

Low Risk Traits

- No reports of invasiveness or naturalization, but no evidence of widespread introduction outside native range
- Unarmed (no spines, thorns, or burrs)
- In the absence of disturbance, shade-intolerance at later growth stages may prevent establishment in mature, intact forests

Second Screening Results for Tree/tree-like shrubs

(A) Shade tolerant or known to form dense stands?> Yes. Shade tolerant up to 15 months of growth. Forms monotypic stands in native range

(B) Bird or clearly wind-dispersed?> Yes. Dispersed by birds and other frugivores

(C) Life cycle <4 years? Yes. Rapid growth rate

Outcome = Reject (High Risk)