

Family: *Ebenaceae*

Taxon: *Diospyros vaccinioides*

Synonym: *Diospyros vaccinioides* var. *oblongata* Merr. **Common Name:** Small Persimmon
Rospidios vaccinioides (Lindl.) A.DC. xiao guo shi

Questionnaire : Status:	current 20090513 Assessor Approved	Assessor: Data Entry Person:	Chuck Chimera Chuck Chimera	Designation: L WRA Score 0
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	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)	y
401	Produces spines, thorns or burrs		y=1, n=0	n
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	
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	
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	n
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	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	
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: L

WRA Score 0

Supporting Data:

101	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	No evidence that species is highly domesticated
102	2010. WRA Specialist. Personal Communication.	NA
103	2010. WRA Specialist. Personal Communication.	NA
201	1873. Hiern, W.H.. A monograph of Ebenaceae. Volume 12, Part 1 of Transactions, Cambridge Philosophical Society. University Press, Cambridge, UK	"China; Hong Kong...S. China...Malacca...Singapore" [distribution tropical to subtropical]
201	2004. Dianpei, W./Shuyi, J./Feipeng, C./Shaolin, P.. Composition and Characteristics of Natural Secondary Forests in Shenzhen, South China. Forestry Studies in China. 6(2): 6-11.	"The climate of this area is low subtropical sea monsoon with mean annual precipitation of 1 898 mm, concentrating from April to September." [climate within native range of Diospyros vaccinioides]
202	2010. WRA Specialist. Personal Communication.	Suited to tropical & subtropical climates
204	2004. Dianpei, W./Shuyi, J./Feipeng, C./Shaolin, P.. Composition and Characteristics of Natural Secondary Forests in Shenzhen, South China. Forestry Studies in China. 6(2): 6-11.	"The climate of this area is low subtropical sea monsoon with mean annual precipitation of 1 898 mm, concentrating from April to September." [climate within native range of Diospyros vaccinioides]
205	2010. WRA Specialist. Personal Communication.	No evidence of repeated introductions outside native range.
301	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	No evidence of naturalization outside native range.
302	2010. WRA Specialist. Personal Communication.	No evidence
305	2001. Langeland, K.A./Stocker, R.K.. Control of Non-native Plants in Natural Areas of Florida. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL http://mrec.ifas.ufl.edu/ldspmg/Ldsp%20Turf%20Mgmt/PDFfiles/WG20900.pdf	"Table 4. Control methods for non-native plants in use by land managers in Florida....Diospyros digyna...Treatment: Large individuals are difficult to kill. Applying 50% Garlon 3A to a freshly cut stump is recommended. Basal bark treatments with Garlon 4 does not work."
305	2007. Randall, R.P.. Global Compendium of Weeds [Online Database]. http://www.hear.org/gcw/	Several species of Diospyros listed as weeds of some type.
401	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Shrubs 1--2 m tall, evergreen, much branched; young branchlets, leaves, and winter buds rusty pilose-pubescent. Branches glabrescent. Petiole 1 mm, rusty pubescent, glabrescent; leaf blade elliptic to obovate, 2- 4 X 0.9--1.5 cm, leathery, abaxially pubescent along midrib when young but glabrous when mature, adaxially lustrous, base obtuse to rotund, margin often pilose-ciliate, apex subacute and mucronate, lateral veins ca. 5 or 6 per side, veins inconspicuous or slightly impressed. " [no spines, thorns or burrs]
402	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	No evidence of allelopathy in genus
403	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Shrubs 1--2 m tall, evergreen, much branched" [not parasitic]
404	2010. WRA Specialist. Personal Communication.	Palatability to browsing or grazing animals unknown
405	1873. Hiern, W.H.. A monograph of Ebenaceae. Volume 12, Part 1 of Transactions, Cambridge Philosophical Society. University Press, Cambridge, UK	Toxicity to animals unknown, but no evidence of toxicity in literature [genus not known to be toxic]
406	2010. WRA Specialist. Personal Communication.	Pests or pathogens unknown

407	2010. Taipei International Flora Exposition. Plant Information - <i>Diospyros vaccinioides</i> . http://www.2010taipeiexpo.tw/ct.asp?xItem=39315&ctNode=6540&mp=4	"The small persimmon is a miniature evergreen tree that is native to the area around Fengkang in Taiwan's Pingtung County, but very few remain growing in the wild. Every year, around April or May, it produces small, pale yellow flowers, and from June to July these mature into ovoid mauve colored fruit. The leaves turn to a brownish purple color in the winter. It copes well with hot, dry, and very windy conditions. It grows slowly, and its wood is very hard. One can often find it being grown in parks, school grounds, or recreational areas. With pruning, it can function as a hedge. It is often considered a highly valuable ornamental potted plant. In Chinese, it is variously known as "Fengkang persimmon," "small persimmon," and "black sandalwood"—due to the hardness of its wood." [over-exploited ornamental plant with no evidence of toxicity]
408	2010. WRA Specialist. Personal Communication.	Unknown [critically endangered with minimal ecological information available]
409	2006. Wang, D.P./Ji, S.Y./Chen, F.P./Xing, F.W./Peng, S.L.. Diversity and relationship with succession of naturally regenerated southern subtropical forests in Shenzhen, China and its comparison with the zonal climax of Hong Kong. <i>Forest Ecology and Mana</i>	"Appendix A... <i>Diospyros vaccinioides</i> " [described as a heliophyte, but shade tolerance unknown]
410	2010. WRA Specialist. Personal Communication.	Soil requirements unknown
411	1996. Shu-kang, L./Gilbert, M.G./White, F.. <i>Flora of China</i> . Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Shrubs 1–2 m tall, evergreen, much branched" [not climbing or smothering]
412	1998. Lu, S.Y./Pan, F.J.. <i>Diospyros vaccinioides</i> . In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4.. www.iucnredlist.org	"Red List Category & Criteria: Critically Endangered" [no evidence that dense thickets are formed]
501	1996. Shu-kang, L./Gilbert, M.G./White, F.. <i>Flora of China</i> . Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	Terrestrial
502	1996. Shu-kang, L./Gilbert, M.G./White, F.. <i>Flora of China</i> . Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	Ebenaceae
503	1996. Shu-kang, L./Gilbert, M.G./White, F.. <i>Flora of China</i> . Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	Ebenaceae [not a nitrogen fixing woody plant]
504	1996. Shu-kang, L./Gilbert, M.G./White, F.. <i>Flora of China</i> . Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Shrubs 1–2 m tall, evergreen, much branched, rusty pilose-pubescent on young branchlets, leaves, and winter buds." [not an herbaceous geophyte]
601	1998. Lu, S.Y./Pan, F.J.. <i>Diospyros vaccinioides</i> . In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4.. www.iucnredlist.org	"A population of unproductive individuals is believed to exist on a wooded hillside in Fengkang. Populations are also recorded from Chuha and Huiyang in China, and Hong Kong...A heavily-exploited ornamental species. Overcollecting in Taiwan, has led to the complete absence of mature trees in the wild." [reproductive failure due to overcollecting, not predators or disease]
602	1996. Shu-kang, L./Gilbert, M.G./White, F.. <i>Flora of China</i> . Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Seeds (1 or)2(or 3), dark brown, ± semiglobose with a small beak, ca. 8 × 6 × 4 mm, minutely rugulose. Fl. May, fr. Autumn and winter."
603	2010. WRA Specialist. Personal Communication.	Ability to hybridize unknown
604	2010. Taipei Botanical Garden. Persimmon - <i>Diospyros vaccinioides</i> . tpbg.tfri.gov.tw/plants/plants_info.aspx?rid=790	"Description of inflorescence and perianth - Dioecious, cyme, axillary, flowers yellow" [therefore, presumably not self-compatible]
605	1996. Shu-kang, L./Gilbert, M.G./White, F.. <i>Flora of China</i> . Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Flowers solitary or staminate also in cymes, subsessile. Staminate flowers: calyx divided nearly to base, ± as long as corolla; calyx lobes 4, narrowly lanceolate, brown pilose; corolla campanulate, ca. 4.5 mm; lobes 4, spreading, ovate, as long as tube, midrib sparsely pilose, apex acuminate; stamens 16. Pistillate flowers: calyx and corolla similar to staminate flowers; staminodes 4–8, linear; ovary glabrous." [flowers not specialized]

606	2010. WRA Specialist. Personal Communication.	Unknown
607	2010. WRA Specialist. Personal Communication.	Time to reproductive maturity unknown
701	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Berry black, globose, ca. 1 cm in diam., glabrous. Seeds (1 or)2(or 3), dark brown, ± semiglobose with a small beak, ca. 8 × 6 × 4 mm, minutely rugulose." [no evidence of unintentional seed dispersal. Fruits & seeds without means of external attachment]
702	1998. Lu, S.Y./Pan, F.J.. Diospyros vaccinioides. In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4.. www.iucnredlist.org	"A heavily-exploited ornamental species. Overcollecting in Taiwan, has led to the complete absence of mature trees in the wild."
703	1996. Corlett, R.T.. Characteristics of Vertebrate-Dispersed Fruits in Hong Kong. Journal of Tropical Ecology. 12(6): 819-833.	"Appendix I...Diospyros vaccinioides...Fruit Diam. (mm): 9.4; Seed Diam. (mm) = 6.8" [unlikely that relatively large fruits and/or seeds would contaminate produce]
704	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Berry fleshy to somewhat leathery" [no adaptations for wind dispersal]
705	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Berry fleshy to somewhat leathery" [no evidence that seeds or fruits are buoyant or water dispersed]
706	1998. Ko, I.W.P./Corlett, R.T./Xu, R.-J.. Sugar composition of wild fruits in Hong Kong, China. Journal of Tropical Ecology. 14: 381–387.	"Table 1...Diospyros vaccinioides...Dispersal agent: B...Dispersal agent, from (Corlett 1996), with additions and corrections: upper case = observed, lower case = inferred, B, b = bird" [observed to be bird dispersed]
707	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Berry fleshy to somewhat leathery" [no means of external attachment]
708	1996. Corlett, R.T.. Characteristics of Vertebrate-Dispersed Fruits in Hong Kong. Journal of Tropical Ecology. 12(6): 819-833.	"Bird-dispersed" [seeds presumably survive passage through gut]
801	1996. Shu-kang, L./Gilbert, M.G./White, F.. Flora of China. Vol. 15. - Ebenaceae. Science Press Beijing, and Missouri Botanical Garden Press, St. Louis.,	"Shrubs 1–2 m tall, evergreen, much branched, rusty pilose-pubescent on young branchlets...Berry black, globose, ca. 1 cm in diam., glabrous. Seeds (1 or)2(or 3), dark brown, ± semiglobose with a small beak, ca. 8 × 6 × 4 mm, minutely rugulose." [relatively large fruits with few seeds, unlikely to produce such high seed densities]
802	2010. WRA Specialist. Personal Communication.	Seed longevity unknown
803	2004. López-Pujol, J./Zhao, A-Man. China: a rich flora needed of urgent conservation. Orsis. 19: 49-89.	"Currently, about 360 species of vascular plants are considered rare by the local government (AFCD, 2004), some severely threatened as Diospyros vaccinioides (CR; IUCN, 2004) and Castanopsis concinna (VU, IUCN, 2004)." [critically endangered, no information on control with herbicides]
804	2010. WRA Specialist. Personal Communication.	Unknown
805	2010. WRA Specialist. Personal Communication.	Unknown