

Taxon: Solanum lasiocarpum	Family: Solanaceae
Common Name(s): hairy egg plant hairy nightshade hairy-fruited eggplant Indian nightshade terong asarn Thai hairy-fruited eggplant	Synonym(s): Solanum ferox auct. Solanum indicum L.

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 2 Jul 2015
WRA Score: 10.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Naturalized, Weedy, Prickly Forms, Edible Fruit, Fleshy-fruited

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	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	y
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed		
303	Agricultural/forestry/horticultural weed		
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		
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	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
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	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
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	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant		
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)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
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
	Knapp, S. (2011). (2042–2043) Proposals to reject the names <i>Solanum ferox</i> and <i>S. fuscatum</i> (Solanaceae). <i>Taxon</i> , 60(6): 1782-1783	"Recent authors have almost universally used the name <i>S. lasiocarpum</i> for the Southeast Asian plants with pubescent fruits and calyces not covering the fruits, so typifying <i>S. ferox</i> with a plant from southern India (the protologue range, but not matching the original description) will overturn this widespread current usage. Rejection of the name will clarify this confusing situation."
	Heiser, C. B. (1987). Origins of <i>Solanum lasiocarpum</i> and <i>S. repandum</i> . <i>American Journal of Botany</i> , 74(7): 1045-1048	" <i>Solanum lasiocarpum</i> Dunal grows spontaneously from India through Indochina, southern China, Malaysia, and Indonesia to the Philippines, New Guinea, and the Solomon Islands and includes a domesticated variety in Thailand."
	Heiser, C.B. 1992. <i>Of Plants and People</i> . University of Oklahoma Press, Norman, OK	[A non-prickly, domesticated form exists] "Umpai Yongboonkird, another former student of mine, wrote that the small-fruited, spiny plants grow wild or as weeds, but that the larger-fruited forms without prickles occurred as 'only one or two plants in the orchards'. On this basis I considered that it was cultivated and must be a truly domesticated plant. It seems rather surprising that one could go into the capital of any country today and find a previously unrecorded domesticated plant, but apparently I had. In due time I described it as <i>Solanum lasiocarpum</i> var. <i>domesticum</i> ."
	Whistler, A. 2011. <i>The Rare Plants of Tonga</i> . Isle Botanica, Honolulu, HI	[Tongan form selected for spinelessness] " <i>Solanum ferox</i> (touloku)—This subshrub, which is native to somewhere in Melanesia, was an ancient Polynesian introduction to Tonga and eastward to the Marquesas, apparently being derived from a wild Melanesian species by selection of spineless individuals."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2015. 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
	Lim, T.K. 2013. <i>Edible Medicinal And Non-Medicinal Plants</i> . Volume 6, Fruits. Springer, Dordrecht	"The species is found in south Asia - India. Sri Lanka: southeast Asia - Kampuchea Thailand, Vietnam Laos: Malesia - Malaysia, Indonesia, Philippines. New Guinea: Southern China - Guangdong. Guangxi. South and Southeast Yunnan: and Taiwan."

Qsn #	Question	Answer
202	Quality of climate match data	High
	Source(s)	Notes
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Useful Tropical Plants Database. 2015. <i>Solanum lasiocarpum</i> . http://tropical.theferns.info/viewtropical.php?id=Solanum+lasiocarpum . [Accessed 1 Jul 2015]	"A plant of the moist tropics, where it is found at elevations up to 1,500 metres. It grows best in areas where annual daytime temperatures are within the range 24 - 30°C, but can tolerate 10 - 35° [418]. It prefers a mean annual rainfall in the range 1,200 - 2,000mm, but tolerates 800 - 4,200m [418]."
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	"In its native range, extending from tropical India east through Indochina, extreme southern China, Malaysia and Indonesia to the Philippines and New Caledonia. it is found from low to middle elevations, 0-1,000 m."
	Sayed Mohd Zain Hasan & Jansen, P.C.M., 1993. <i>Solanum L</i> [Internet] Record from Proseabase. Siemonsma, J.S. and Piluek, K. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 1 Jul 2015]	[Elevation range can exceed 1000 m, demonstrating environmental versatility] " <i>Solanum ferox</i> occurs wild in the Asian tropics in forest openings, on disturbed sites and in secondary thickets, often in shady sites, up to 1500 m altitude."
	Symon, D.E. 1985. The Solanaceae of New Guinea. <i>Journal of the Adelaide Botanic Gardens</i> 8: 1-171	[Elevation range may be able to exceed 1000 m, demonstrating potential environmental versatility] " <i>S. lasiocarpum</i> is now widespread in New Guinea. It is mostly found at low altitudes and is rare above 1000 m."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	"The species is found in south Asia - India. Sri Lanka: southeast Asia - Kampuchea Thailand, Vietnam Laos: Malesia - Malaysia, Indonesia, Philippines. New Guinea: Southern China - Guangdong. Guangxi. South and Southeast Yunnan: and Taiwan."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Thomas, M.B. & Whistler, W.A. 2013. <i>Solanum ferox</i> . Rare Plants of Niue. CIEER. http://www.cieer.org/efloras/niue_rare/index.php . [Accessed 2 Jul 2015]	"A Polynesian introduction to Niue, native to somewhere in Melanesia, recorded from New Britain to the Marquesas. It is currently uncommon in old plantations, probably in places where it was formerly cultivated for its tomato-like fruit. It fell into disuse, probably because of the comparative superior quality of introduced tomatoes."

Qsn #	Question	Answer
	Whistler, A. 2011. The Rare Plants of Tonga. Isle Botanica, Honolulu, HI	" <i>Solanum ferox</i> (toulouku)—This subshrub, which is native to somewhere in Melanesia, was an ancient Polynesian introduction to Tonga and eastward to the Marquesas, apparently being derived from a wild Melanesian species by selection of spineless individuals. It was formerly cultivated for its tomato-like fruits, but probably was ignored when more prolific fruits like tomatoes were introduced in the European era. The plant has apparently been collected once in Tonga, in 1926 on 'Eua, but the name toulouku was recorded in the first Tongan dictionary (Rabone 1845). The species has probably been extirpated from Samoa and perhaps parts of eastern Polynesia, but is still found in Fiji, Niue, and perhaps the Cook Islands."
	Heiser, C.B. 1992. Of Plants and People. University of Oklahoma Press, Norman, OK	"The progenitor of <i>S. lasiocarpum</i> almost certainly had to come from the Americas, and most likely it was derived from <i>S. candidum</i> , but when and how? It can hardly be a very recent introduction, for it now has a wide distribution, from India east through Indochina, southern China, Malaysia, and Indonesia to the Philippines and New Guinea." ... "For <i>S. lasiocarpum</i> to have attained its present wide distribution in Asia in a few hundred year could be accounted for by dispersal in part by birds and in part by human beings who had found a use for the plant. "

301	Naturalized beyond native range	y
	Source(s)	Notes
	Corlett, R.T. 1988. The Naturalized Flora of Singapore. Journal of Biogeography 15(4): 657-663	"Exotic vascular plant species naturalized in Singapore, with habit, region of origin, probable reason for introduction(orn.= as ornamental), date of first record in Singapore (R=first record in Ridley (1922-25) and current status (c=common, l=local, r=rare)." [<i>Solanum ferox</i> introduced as a crop]
	Wiersema, J.H. & León, B. 1999. World Economic Plants: A Standard Reference. CRC Press, Boca Raton, FL	"natzd. elsewhere"

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	Symon, D.E. 1985. The Solanaceae of New Guinea. Journal of the Adelaide Botanic Gardens 8: 1-171	" <i>S. lasiocarpum</i> is now widespread in New Guinea. It is mostly found at low altitudes and is rare above 1000 m. It occurs in disturbed sites, roadsides, forest margins, logging areas, old gardens, secondary regrowth and about house clearings."
	Heiser, C.B. 1992. Of Plants and People. University of Oklahoma Press, Norman, OK	"Umpai Yongboonkird, another former student of mine, wrote that the small-fruited, spiny plants grow wild or as weeds, but that the larger-fruited forms without prickles occurred as 'only one or two plants in the orchards'."
	Thomas, M.B. & Whistler, W.A. 2013. <i>Solanum ferox</i> . Rare Plants of Niue. CIEER. http://www.cieer.org/efloras/niue_rare/index.php . [Accessed 2 Jul 2015]	"Weed in plantation near Alofi. Sykes 607" [Weed of unspecified impacts. Possibly an agricultural weed]
	Reddy, C.S. 2013. Flora of North Andaman Islands, India. Forestry & Ecology Division, National Remote Sensing Centre, Balanagar, Hyderabad	[Weed of unspecified impacts] " <i>Solanum ferox</i> ... Herbs. Weed of disturbed places."

Qsn #	Question	Answer
	Quattrocchi, U.. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	<i>Solanum ferox</i> listed as a weed of unspecified impacts

303	Agricultural/forestry/horticultural weed	
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	Listed as a weed of sugarcane fields in Java [Impacts unspecified]

304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

305	Congeneric weed	y
	Source(s)	Notes
	USDA Natural Resources Conservation Service. 2014. Federal Noxious Weed List. http://plants.usda.gov/java/noxious . [Accessed 29 Jun 2015]	Federal noxious weeds include: <i>Solanum tampicense</i> , <i>Solanum torvum</i> & <i>Solanum viarum</i>
	USDA Natural Resources Conservation Service. 2015. Hawaii State-listed Noxious Weeds. http://plants.usda.gov/java/noxious?rptType=State&statefips=15 . [Accessed 29 Jun 2015]	Hawaii State-listed Noxious Weeds include: <i>Solanum carolinense</i> L., <i>Solanum elaeagnifolium</i> Cav., <i>Solanum robustum</i> Wendl. & <i>Solanum torvum</i> Sw.

Qsn #	Question	Answer
401	Produces spines, thorns or burrs	
	Source(s)	Notes
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	"A sub-erect or spreading, lignescent perennial shrub, 1-1.5 m tall, armed, densely pubescent throughout with pale yellow, many-celled stellate hairs. Stem and branches stout, with flat, erect or slightly recurved. short, cauline prickles 1-8 mm. Leaves are ovate, 10-20 cm by 8-18 cm, pubescent and prickly along veins on both surfaces, base truncate or obtuse, apex acute, margin sinuately-lobed, petioles pubescent, 3-14 cm."
	D'Arcy, W.G. 1986. Solanaceae, Biology and Systematics. Columbia University Press, New York, NY	"Fruits of a spineless, large-fruited variety of <i>Solanum lasiocarpum</i> have been found in markets in Bangkok."
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Herbs or subshrubs, erect or spreading, 1–1.5 m tall, armed, densely pubescent throughout with pale yellow, many-celled stellate hairs. Stems and branches stout, with flat, erect or slightly recurved prickles 1–8 mm."
	Conservation International Pacific Islands Program, 2011. Biodiversity Conservation Lessons Learned Technical Series 2: The Rare Plants of Samoa. Conservation International, Apia, Samoa	[Unarmed form] "A Polynesian introduction to Samoa, native to somewhere in Melanesia, recorded from New Britain to the Marquesas." ... "Shrub up to 1.5 m in height, unarmed, but stems covered with simple or stellate pubescence, at least when young."

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown

403	Parasitic	n
	Source(s)	Notes
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	"A sub-erect or spreading, lignescent perennial shrub, 1-1.5 m tall, armed, densely pubescent throughout with pale yellow, many-celled stellate hairs." [Solanaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown if foliage or vegetative parts are palatable to browsing or grazing animals. Fruit consumed by people and presumably to animals

405	Toxic to animals	n
	Source(s)	Notes
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	y
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Qsn #	Question	Answer
	Source(s)	Notes
	McQuate, G. T., & Liquido, N. J. (2013). Annotated world bibliography of host fruits of <i>Bactrocera latifrons</i> (Hendel) (Diptera: Tephritidae). <i>Insecta Mundi</i> 0289: 1-61	" <i>Bactrocera latifrons</i> (Hendel) (Diptera: Tephritidae) infests fruits and vegetables of a number of different plant species, with host plants primarily found in the plant families Solanaceae and Cucurbitaceae. Although <i>B. latifrons</i> is of primarily Asian distribution (e.g., Pakistan, India, Sri Lanka, Burma, China [Fujian, Yunnan, Hong Kong, Hainan], Thailand, Laos, Vietnam, Malaysia, Singapore, Taiwan, and Brunei), its range has expanded through introductions into Hawaii, Okinawa, Tanzania, and Kenya, and poses a threat of introduction into other countries where it does not presently occur." ... "The highest field infestation rates (number of <i>B. latifrons</i> individuals per kg fruit) are all reported in solanaceous fruits, the top five being <i>Solanum lasiocarpum</i> Dunal (823.3/kg; Clarke et al. [2001]), <i>Solanum trilobatum</i> L. (705.3/kg; Clarke et al. [2001]), <i>Solanum nigrum</i> L. (643.4/kg; Vargas and Nishida [1985a]), <i>Solanum torvum</i> Sw. (402.3/kg; Clarke et al. [2001]), and <i>Lycianthes macrodon</i> (397.8/kg; Clarke et al."
	CABI, 2015. <i>Bactrocera papayae</i> (papaya fruit fly). In: <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"In addition to the host list provided in this datasheet, ... <i>Solanum ferox</i> [<i>Solanum lasiocarpum</i>] and <i>Triphasia trifolia</i> are also hosts of <i>B. papayae</i> ."
	Sunshine Seeds. 2015. <i>Solanum lasiocarpum</i> . http://www.sunshine-seeds.de/Solanum-lasiocarpum-55629p.html?language=en . [Accessed 2 Jul 2015]	"Pests: Spider mites > especially under glass"

Qsn #	Question	Answer
407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Useful Tropical Plants Database. 2015. <i>Solanum lasiocarpum</i> . http://tropical.theferns.info/viewtropical.php?id=Solanum+lasiocarpum . [Accessed 1 Jul 2015]	"Although providing many well-known foods for people, including the potato, tomato, pepper and aubergine, most plants in the family Solanaceae also contain poisonous alkaloids. Unless there are specific entries with information on edible uses, it would be unwise to ingest any part of this plant[K]."
	Lim, T.K. 2013. <i>Edible Medicinal And Non-Medicinal Plants</i> . Volume 6, Fruits. Springer, Dordrecht	"The edible fruits are harvested from the wild or from cultivation. In India and southeast Asia, the fruit is widely used as a sour-relish in curries and sauces such as nam prek in Thailand."
	Symon, D.E. 1985. <i>The Solanaceae of New Guinea</i> . <i>Journal of the Adelaide Botanic Gardens</i> 8: 1-171	"The species is apparently occasionally cultivated and eaten, e.g. Brass 22020 Menapi, Cape Vogel, "eaten by natives"; Morren 58, UKR subdistrict Telefomin "cultivated and planted from seed"; Townsend 55 Ambunti, Sepik, "edible"."
	Sayed Mohd Zain Hasan & Jansen, P.C.M., 1993. <i>Solanum L</i> [Internet] Record from Proseabase. Siemonsma, J.S. and Piluek, K. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 1 Jul 2015]	[Edible and medicinal uses] "The mature, acidic fruits of <i>Solanum ferox</i> are used as a sour relish in India, Malaysia and Thailand. They are also used to prepare curries and in Thailand it is an ingredient of the well known sauce 'nam prek'. In Indonesia the fruits are eaten raw or cooked with rice. In traditional medicine the seeds are used to treat toothache by rolling them in a banana leaf, burning them as a cigar and inhaling the smoke. The roots are used to cure wounds, severe bruises, itch, syphilis and to relieve violent pains all over the body."
	Wagstaff, D.J. 2008. <i>International poisonous plants checklist: an evidence-based reference</i> . CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[No evidence. Unlikely in wet, humid habitats] "Wet places in ravines and valleys, thickets, open forests, near roads, humid places, dense forests"

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Useful Tropical Plants Database. 2015. <i>Solanum lasiocarpum</i> . http://tropical.theferns.info/viewtropical.php?id=Solanum+lasiocarpum . [Accessed 1 Jul 2015]	"Succeeds in full sun and in light shade[418]."
	Wu, Z. Y. & P. H. Raven, (eds). 1994. <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Wet places in ravines and valleys, thickets, open forests, near roads, humid places, dense forests"
	Sayed Mohd Zain Hasan & Jansen, P.C.M., 1993. <i>Solanum L</i> [Internet] Record from Proseabase. Siemonsma, J.S. and Piluek, K. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 1 Jul 2015]	[often in shady sites] " <i>Solanum ferox</i> occurs wild in the Asian tropics in forest openings, on disturbed sites and in secondary thickets, often in shady sites, up to 1500 m altitude."

Qsn #	Question	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Useful Tropical Plants Database. 2015. <i>Solanum lasiocarpum</i> . http://tropical.theferns.info/viewtropical.php?id=Solanum+lasiocarpum . [Accessed 1 Jul 2015]	"Can be grown in a wide range of well-drained, fertile soils[418]. Prefers a pH in the range 5.5 - 7, tolerating 4.5 - 7.5[418]."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	"A sub-erect or spreading, lignescent perennial shrub, 1-1.5 m tall, armed, densely pubescent throughout with pale yellow, many-celled stellate hairs.

412	Forms dense thickets	
	Source(s)	Notes
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	"It occurs in thickets. open forest, disturbed sites in rain forest or monsoon forest, near roads, humid places and wet places in ravines and valleys second growth thickets."
	Sayed Mohd Zain Hasan & Jansen, P.C.M., 1993. <i>Solanum</i> L [Internet] Record from Proseabase. Siemonsma, J.S. and Piluek, K. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 1 Jul 2015]	[Unknown if this species forms thickets, or is one of many plants comprising a thicket] " <i>Solanum ferox</i> occurs wild in the Asian tropics in forest openings, on disturbed sites and in secondary thickets, often in shady sites, up to 1500 m altitude."

501	Aquatic	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[Terrestrial] "Wet places in ravines and valleys, thickets, open forests near roads, humid places, dense forests; 200–1000 m. Guangdong, Guangxi, Taiwan, S and SE Yunnan [Cambodia, India, Indonesia, Laos, Philippines, Sri Lanka, Thailand, Vietnam]."

502	Grass	n
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 26 Jun 2015]	"Family: Solanaceae subfamily: Solanoideae tribe: Solaneae"

503	Nitrogen fixing woody plant	n
	Source(s)	Notes

Qsn #	Question	Answer
	USDA, ARS, National Genetic Resources Program. 2015. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 26 Jun 2015]	"Family: Solanaceae" [No evidence]

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
Source(s)		Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Herbs or subshrubs, erect or spreading, 1–1.5 m tall, armed, densely pubescent throughout with pale yellow, many-celled stellate hairs."

601	Evidence of substantial reproductive failure in native habitat	n
Source(s)		Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[No evidence] "Wet places in ravines and valleys, thickets, open forests, near roads, humid places, dense forests; 200–1000 m. Guangdong, Guangxi, Taiwan, S and SE Yunnan [Cambodia, India, Indonesia, Laos, Philippines, Sri Lanka, Thailand, Vietnam]."
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	No evidence

602	Produces viable seed	y
Source(s)		Notes
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	"Fruit a berry, green turning to yellow or orangey yellow when mature, globose, 2.5-3.5 cm diameter, pubescent, densely covered with stellate hairs many seeded. Seeds 2-2.5 mm long, flat, broadly reniform-ovate, pale yellow with pitted surface."
	Sayed Mohd Zain Hasan & Jansen, P.C.M., 1993. Solanum L [Internet] Record from Proseabase. Siemonsma, J.S. and Piluek, K. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 1 Jul 2015]	"Seed of Solanum macrocarpon germinates within 1-2 weeks of sowing, seed of Solanum ferox and Solanum violaceum takes longer."

603	Hybridizes naturally	
Source(s)		Notes
	Heiser, C. B. (1987). Origins of Solanum lasiocarpum and S. repandum. American Journal of Botany, 74(7): 1045-1048	[Artificial hybrids possible] "Artificial hybrids between S. candidum and S. lasiocarpum are fertile, and it is postulated that S. lasiocarpum resulted from a Spanish introduction of S. candidum to Asia." ... "hybrids of both S. candidum and S. lasiocarpum with S. repandum are fertile."

Qsn #	Question	Answer
	Heiser, C.B. (1989). Artificial hybrids in <i>Solanum</i> sect. <i>Lasiocarpa</i> . <i>Systematic Botany</i> , 14(1): 3-6	[Artificial hybrids possible] "The following new artificial interspecific hybrids are reported in <i>Solanum</i> sect. <i>Lasiocarpa</i> : <i>S. hirtum</i> x <i>stramonifolium</i> , <i>S. hyporhodium</i> x <i>quitoense</i> , <i>S. lasiocarpum</i> x <i>sessiliflorum</i> , <i>S. pseudolulo</i> x <i>hirtum</i> , <i>S. pseudolulo</i> x <i>stramonifolium</i> , and <i>S. repandum</i> x <i>lasiocarpum</i> . As a result of hybridizations, three groups of species may be recognized in the section: (1) <i>S. pectinatum</i> , (2) <i>S. sessiliflorum</i> , and (3) the remainder of the species. It seems likely that interspecific hybridization will be most useful in the improvement of the naranjilla, <i>S. quitoense</i> "

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Useful Tropical Plants Database. 2015. <i>Solanum lasiocarpum</i> . http://tropical.theferns.info/viewtropical.php?id=Solanum+lasiocarpum . [Accessed 1 Jul 2015]	"Self-fertile - Yes"
	Robertson, K., E. E. Goldberg, and B. Igic. 2011. Comparative evidence for the correlated evolution of polyploidy and self compatibility in <i>Solanaceae</i> . <i>Evolution</i> 65:139–155	" <i>Solanum lasiocarpum</i> - SI-SC State = SC" [Self-compatible]
	Heiser, C. B. (1987). Origins of <i>Solanum lasiocarpum</i> and <i>S. repandum</i> . <i>American Journal of Botany</i> , 74(7): 1045-1048	[Closely related species self-compatible] "Therefore, if <i>S. lasiocarpum</i> gave rise to <i>S. repandum</i> the question may arise as to whether enough time had elapsed for speciation to occur and for <i>S. repandum</i> to have attained its present distribution. If we suppose that seed was carried to one of the islands by birds (if a single seedling became established it would be sufficient, for the species is self-compatible) or by people because it was a useful plant, isolation would be immediate and the founder principle would operate."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Sayed Mohd Zain Hasan & Jansen, P.C.M., 1993. <i>Solanum</i> L [Internet] Record from Proseabase. Siemonsma, J.S. and Piluek, K. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 1 Jul 2015]	"Bees are the most effective natural pollinators; they vibrate or 'buzz' the anthers to release their pollen."
	Useful Tropical Plants Database. 2015. <i>Solanum lasiocarpum</i> . http://tropical.theferns.info/viewtropical.php?id=Solanum+lasiocarpum . [Accessed 1 Jul 2015]	"Pollinators - Self"

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Useful Tropical Plants Database. 2015. <i>Solanum lasiocarpum</i> . http://tropical.theferns.info/viewtropical.php?id=Solanum+lasiocarpum . [Accessed 1 Jul 2015]	"Propagation Seed -"

Qsn #	Question	Answer
	Sayed Mohd Zain Hasan & Jansen, P.C.M., 1993. <i>Solanum L</i> [Internet] Record from Proseabase. Siemonsma, J.S. and Piluek, K. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 1 Jul 2015]	[No evidence] "Propagation and planting Propagation is by seed or by shoot cuttings treated with a growth hormone to stimulate rooting. Before sowing, the seeds may be soaked overnight in water to promote even germination. Seeds are sown 0.5-1 cm deep in pots or seed-beds. Preferred growing conditions are temperatures of 25-32°C, a relative humidity of more than 80% and 50 75% shade. Seedlings with two leaves (2-3 weeks old) are transplanted into small polythene bags and kept under shade until they reach 15-20 cm height. After hardening for a few days the plants can be planted in the field."

607	Minimum generative time (years)	1
	Source(s)	Notes
	Sayed Mohd Zain Hasan & Jansen, P.C.M., 1993. <i>Solanum L</i> [Internet] Record from Proseabase. Siemonsma, J.S. and Piluek, K. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org . [Accessed 2 Jul 2015]	"Flowering usually begins 3-4 months after sowing."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Symon, D.E. 1985. The Solanaceae of New Guinea. <i>Journal of the Adelaide Botanic Gardens</i> 8: 1-171	[Seeds lack means of attachment, but occurrence along roadsides could result in accidental dispersal] " <i>S. lasiocarpum</i> is now widespread in New Guinea. It is mostly found at low altitudes and is rare above 1000 m. It occurs in disturbed sites, roadsides, forest margins, logging areas, old gardens, secondary regrowth and about house clearings."

Qsn #	Question	Answer
702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Conservation International Pacific Islands Program, 2011. Biodiversity Conservation Lessons Learned Technical Series 2: The Rare Plants of Samoa. Conservation International, Apia, Samoa	[Rarely cultivated now] "The abandonment of cultigens is probably the major reason for the extirpation or near extirpation of some ancient Polynesian cultivated plants from Samoa. The ancient Polynesians carried the plants useful to them throughout Polynesia, and maintained their populations by cultivation. However, in the European era many new and better species were introduced, which led to some of the 'canoe plants' no longer being cultivated. A good example of this is the Polynesian tomato taulo'u (<i>Solanum ferox</i>), which in ancient times was cultivated for its tomato-like fruits. However, with the introduction of the more prolific and tastier real tomatoes, Samoans apparently lost interest in cultivating taulo'u, which has led to its extirpation from Samoa. Although it is not an endemic species and hence is also found elsewhere, it has been extirpated throughout most of its Polynesian range and is in danger of extinction."
	Sunshine Seeds. 2015. <i>Solanum lasiocarpum</i> . http://www.sunshine-seeds.de/Solanum-lasiocarpum-55629p.html?language=en . [Accessed 2 Jul 2015]	Seeds available commercially

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	Department of Agriculture and Food, Western Australia. 2010. Submission to the Draft Import Risk Analysis Report for Table Grapes from the People's Republic of China	[<i>Solanum lasiocarpum</i> listed as a Quarantine Weed] "Table 3. 128 weed species, that are present in Australia that could potentially contaminate grape bunches from China and are either Declared Plants or Quarantine Weeds in Western Australia."
	WRA Specialist. 2015. Personal Communication	No evidence, but small seeds (ca. 2 mm) could possibly become a produce contaminant if cultivated with other fruits & vegetables

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[No adaptations for wind dispersal] "Berry orange, globose, ca. 2 cm in diam., densely stellate hirsute, tomentum persistent. Seeds brown, ca. 2 mm in diam."

705	Propagules water dispersed	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[No evidence. Fleshy-fruited & adapted for zoochory] "Berry orange, globose, ca. 2 cm in diam., densely stellate hirsute, tomentum persistent. Seeds brown, ca. 2 mm in diam." ... "Wet places in ravines and valleys, thickets, open forests, near roads, humid places, dense forest"

706	Propagules bird dispersed	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Heiser, C.B. 1992. Of Plants and People. University of Oklahoma Press, Norman, OK	"...birds are thought to be involved in its dispersal, ..."
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[Presumably Yes. Fleshy-fruited] "Berry orange, globose, ca. 2 cm in diam., densely stellate hirsute, tomentum persistent. Seeds brown, ca. 2 mm in diam."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Lim, T.K. 2013. Edible Medicinal And Non-Medicinal Plants. Volume 6, Fruits. Springer, Dordrecht	[No evidence, and no means of external attachment] "Fruit a berry. green turning to yellow or orangey yellow when mature. globose, 2.5 -3.5 cm diameter. pubescent. densely covered with stellate hairs (Plates 1 and 2). many seeded. Seeds 2- 2.5 mm long. fl m. broadly reniform- Ovate. pale yellow with pitted surface."

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[Presumably Yes. Adapted for zoochory] "Berry orange, globose, ca. 2 cm in diam., densely stellate hirsute, tomentum persistent. Seeds brown, ca. 2 mm in diam."

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Berry orange, globose, ca. 2 cm in diam., densely stellate hirsute, tomentum persistent. Seeds brown, ca. 2 mm in diam."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. 2008. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ . [Accessed 2 Jul 2015]	Unknown. Many species of <i>Solanum</i> have orthodox seeds

803	Well controlled by herbicides	y
	Source(s)	Notes
	Motooka, P., Castro, L., Nelson, D., Nagai, G. & Ching, L. 2003. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI	[Herbicides to control <i>Solanum torvum</i> would likely be effective on <i>S. lasiocarpum</i>] "Sensitive to foliar-applied triclopyr and soil-applied tebuthiuron"
	Swarbrick, J.T. 1997. Weeds of the Pacific Islands. Technical paper no. 209. South Pacific Commission, Noumea, New Caledonia	[Herbicides to control <i>Solanum torvum</i> would likely be effective on <i>S. lasiocarpum</i>] "Susceptible to translocated herbicides, including glyphosate, 2,4-D, picloram and triclopyr applied to the foliage for freshly-cut stumps at standard rates"

Qsn #	Question	Answer
	WRA Specialist. 2015. Personal Communication	No information on herbicide efficacy or chemical control of this species, but herbicides that control other weedy Solanum species would likely be effective

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2015. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Grows in tropical climates
- Widely introduced & naturalized throughout the Pacific
- Reported as a weed of disturbed areas (impacts generally unspecified)
- Other *Solanum* species have become invasive
- Forms with prickles exist
- Alternate host of fruit flies in the genus *Bactrocera*
- Shade tolerant
- Tolerates many soil types
- Reproduces by seed
- Self-fertile
- Able to reach maturity in <1 growing season
- Seeds dispersed by birds & intentionally by people

Low Risk Traits

- Despite reports of weediness, negative impacts are not documented
- Unarmed forms exist
- Fruits edible and used medicinally
- Not reported to spread vegetatively
- Herbicides are effective at controlling other weedy *Solanum* species