

Taxon: <i>Ligustrum lucidum</i> W. T. Aiton	Family: Oleaceae
Common Name(s): broadleaf privet Chinese liguster Chinese privet Chinese wax-leaf privet giant privet glossy privet large-leaf privet ligustrum tree privet white waxtree	Synonym(s): <i>Esquirolia sinensis</i> H. Léveillé <i>Ligustrum esquirolii</i> H.Lév. <i>Ligustrum magnoliifolium</i> Dippel <i>Ligustrum roxburghii</i> Blume <i>Ligustrum wallichii</i> Vis. <i>Olea chinensis</i> Sweet <i>Olea clavata</i> G.Don <i>Phillyrea paniculata</i> Roxb.

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 8 Aug 2017
WRA Score: 19.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Ornamental Tree, Environmental Weed, Toxic, Thicket-Forming, 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)	Intermediate
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	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed		
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	y
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		

Qsn #	Question	Answer Option	Answer
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	n
405	Toxic to animals	y=1, n=0	y
406	Host for recognized pests and pathogens	y=1, n=0	y
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	y
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	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	y
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	y
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	y
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	y
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)	y=1, n=-1	y
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y

Qsn #	Question	Answer Option	Answer
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
	Gilman, E.F. & Watson, D.G. 1993. <i>Ligustrum lucidum</i> . Glossy Privet. Fact Sheet ST-354. IFAS, University of Florida, Gainesville, FL	" <i>L. lucidum</i> is a prolific fruit producer, is capable of germinating and surviving in a broad range of forest environments, it is relatively shade tolerant and has higher survival and faster growth rate in comparison to the most common native species. All these characteristics highlight its potency as a successful invader, and point to few vulnerabilities that could be targets of control measures." [No evidence of domestication]

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2017. 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"	Intermediate
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 6 Aug 2017]	"Native: Asia-Temperate China: China - Anhui, - Fujian, - Gansu, - Guangdong, - Guangxi, - Guizhou, - Henan, - Hubei, - Hunan, - Jiangsu, - Jiangxi, - Shaanxi, - Sichuan, - Xizang, - Yunnan, - Zhejiang"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 6 Aug 2017]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	CABI, 2017. Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	" <i>L. lucidum</i> prefers warm and humid environments (700 to 1600 mm rainfall) in sub-tropical and temperate regions (van Oosterhout et al., 2016; Queensland Government, 2016). However it can be also found in tropical and temperate areas."

Qsn #	Question	Answer
	Gilman, E.F. & Watson, D.G. 1993. <i>Ligustrum lucidum</i> . Glossy Privet. Fact Sheet ST-354.IFAS, University of Florida, Gainesville, FL	"USDA hardiness zones: 8 through 11"
	Wu, Z. Y. & P. H. Raven, eds. 1996. <i>Flora of China</i> . Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Woods; below 2900 m."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Staples, G. W., Imada, C.T. & Herbst, D. R. 2003. New Hawaiian plant records for 2001. Bishop Museum Occasional Papers. 74: 7-21	"Long cultivated as a hedge plant and small shade tree in the Hawaiian Islands, <i>L. lucidum</i> is abundant on the island of Hawai'i. The following specimen represents the first naturalized record for the state. <i>Ligustrum lucidum</i> differs from the other naturalized privet (<i>L. sinense</i> Lour.) in its larger plant size; leaves 7.5–15 cm long, ovate, leathery, glossy, and smooth; terminal panicles up to 25 cm long, with 4-parted flowers 3–4 mm long, the corolla tube equal in length to slightly shorter than the lobes. The glossy blue-black drupes are bird dispersed. Material examined. HAWAII: Hämäkua Distr., above Waipi'o Valley, near river feeding Hakalaoa Falls, off jeep road by old corral near Hämäkua forest reserve boundary, trees naturalizing and spreading along small stream, ca. 550 m, 24 Feb 1991, T. Motley, W. Char, B. Pang & C. Imada 1001."
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 6 Aug 2017]	"Naturalized: Africa South Tropical Africa: Mozambique Southern Africa: South Africa Australasia Australia: Australia New Zealand: New Zealand Northern America : South America; United States Southern America : South America; United States"
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14 (4), 122-130	Naturalized in subcoastal-eastern Australia from northern Queensland to Victoria; Northern Island of New Zealand

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Imada, C.T., Staples, G.W. & Herbst, D.R. 2005. Annotated Checklist of Cultivated Plants of Hawai'i. http://www2.bishopmuseum.org/HBS/botany/cultivatedplants/ . [Accessed 7 Aug 2017]	" <i>Ligustrum lucidum</i> W. T. Aiton (Confirmed) First Collected: 1910 Locations: Harold L. Lyon Arboretum Limahuli Garden (a satellite garden of National Tropical Botanical Garden) (Confirmed)

Qsn #	Question	Answer
	Staples, G. W., Imada, C.T. & Herbst, D. R. 2003. New Hawaiian plant records for 2001. Bishop Museum Occasional Papers. 74: 7-21	"Long cultivated as a hedge plant and small shade tree in the Hawaiian Islands, <i>L. lucidum</i> is abundant on the island of Hawai'i."
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 7 Aug 2017]	"Naturalized: Africa South Tropical Africa: Mozambique Southern Africa: South Africa Australasia Australia: Australia New Zealand: New Zealand Northern America : South America; United States Southern America : South America; United States Cultivated: . widely cult."

301	Naturalized beyond native range	Y
	Source(s)	Notes
	Hoyos, L. E., Gavier-Pizarro, G. I., Kuemmerle, T., Bucher, E H., Radeloff, V. C., & Tecco, P. A. (2010). Invasion of glossy privet (<i>Ligustrum lucidum</i>) and native forest loss in the Sierras Chicas of Córdoba, Argentina. <i>Biological Invasions</i> , 12(9), 3261-3275	"Glossy privet (<i>Ligustrum lucidum</i>) is a tree native to China that successfully invades forests of central Argentina."
	Gut, B. 2008. <i>Trees in Patagonia</i> . Birkhauser Verlag, Basel, Switzerland	" <i>Ligustrum lucidum</i> " ... "Status and distribution: Introduced, naturalized in certain regions, e.g. Buenos Aires; native to China and Korea. In Patagonia, ornamental, in warmer regions."
	Staples, G. W., Imada, C.T. & Herbst, D. R. 2003. New Hawaiian plant records for 2001. Bishop Museum Occasional Papers. 74: 7-21	"Long cultivated as a hedge plant and small shade tree in the Hawaiian Islands, <i>L. lucidum</i> is abundant on the island of Hawai'i. The following specimen represents the first naturalized record for the state. <i>Ligustrum lucidum</i> differs from the other naturalized privet (<i>L. sinense</i> Lour.) in its larger plant size; leaves 7.5–15 cm long, ovate, leathery, glossy, and smooth; terminal panicles up to 25 cm long, with 4-parted flowers 3–4 mm long, the corolla tube equal in length to slightly shorter than the lobes. The glossy blue-black drupes are bird dispersed. Material examined. HAWAII: Hämäkua Distr., above Waipi'o Valley, near river feeding Hakalaoa Falls, off jeep road by old corral near Hämäkua forest reserve boundary, trees naturalizing and spreading along small stream, ca. 550 m, 24 Feb 1991, T. Motley, W. Char, B. Pang & C. Imada 1001"
	Queensland Government. (2017). <i>Weeds of Australia</i> . <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"This species is mainly naturalised in the wetter parts of south-eastern and eastern Australia. It is most common in south-eastern Queensland and in the coastal and sub-coastal districts of New South Wales, but is also present in Victoria, the ACT and on Norfolk Island. Widely naturalised in other parts of the world, including southern Africa, temperate Asia, New Zealand, Hawaii, southern and eastern USA, and southern South America."

302	Garden/amenity/disturbance weed	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Weed of: Forestry, Orchards & Plantations, Pastures"

303	Agricultural/forestry/horticultural weed	
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Weed of: Forestry, Orchards & Plantations, Pastures" [Potentially. Most references discuss negative environmental impacts]

304	Environmental weed	y
	Source(s)	Notes
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"Broad-leaf privet (<i>Ligustrum lucidum</i>) is regarded as an environmental weed or potential environmental weed in Victoria, New South Wales, Queensland and the ACT. It is currently of most concern in south-eastern Queensland, where it is ranked among the top 20 most invasive plants, and eastern New South Wales. This species causes widespread and significant environmental damage, and was recently listed as a priority environmental weed in seven Natural Resource Management regions. Its annual seed production is enormous, it can invade relatively intact rainforest communities, and it quickly outcompetes riparian vegetation. Broad leaf privet (<i>Ligustrum lucidum</i>) can form dense thickets, particularly in coastal areas, which shade out and displace rainforest species. This can transform the habitat available to native animals, creating an ecosystem dominated by weeds, and disrupt the access of animals to natural corridors. In New South Wales broad-leaf privet (<i>Ligustrum lucidum</i>) has become an invasive weed of rainforests, gullies and creek banks in coastal districts north from Bega, on the far south coast, and inland to West Wyalong. Abundant fruiting populations of this weed support artificially high numbers of pied currawongs (<i>Strepera graculina</i>) in New South Wales, disrupting the natural ecological balance and adversely affecting other native birds. It is widely distributed throughout south-eastern Queensland and can also be found on the Atherton Tablelands, in northern Queensland. Small naturalised populations also exist in north-eastern and southern Victoria, where it is regarded as a potential threat to grasslands, woodlands, riparian vegetation and sclerophyll forests."
	Aragón, R., & Groom, M. (2003). Invasion by <i>Ligustrum lucidum</i> (Oleaceae) in NW Argentina: early stage characteristics in different habitat types. <i>Revista de Biología Tropical</i> , 51(1), 59-70	"Currently biological invasions are considered one of the worlds most serious conservation problems. <i>Ligustrum lucidum</i> is the most abundant exotic tree in secondary forest patches of montane forests of NW Argentina." ... " <i>L. lucidum</i> saplings grew significantly more than saplings of the most common native species, and also showed higher seedling survival. <i>L. lucidum</i> is a prolific fruit producer, is capable of germinating and surviving in a broad range of forest environments, it is relatively shade tolerant and has higher survival and faster growth rate in comprison to the most common native species. All these characteristics highlight its potency as a successful invader, and point to few vulnerabilities that could be targets of control measures."

Qsn #	Question	Answer
	Gut, B. 2008. Trees in Patagonia. Birkhauser Verlag, Basel, Switzerland	"Remark: <i>L. lucidum</i> is able to grow in various habitats and can become a noxious weed (see GISD)."
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. Plant Protection Quarterly, 14 (4), 122-130	"they (<i>L. lucidum</i> and <i>L. sinense</i>) are more or less serious environmental weeds."

305	Congeneric weed	y
	Source(s)	Notes
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. Plant Protection Quarterly, 14 (4), 122-130	"they (<i>L. lucidum</i> and <i>L. sinense</i>) are more or less serious environmental weeds."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, eds. 1996. Flora of China. Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[No evidence] "Shrubs or trees to 25 m, evergreen or deciduous, glabrous. Branchlets terete. Petiole 1–3 cm; leaf blade ovate to sometimes broadly elliptic or elliptic to lanceolate, 6–17 × 3–8 cm, leathery or papery, base rounded or sometimes attenuate, apex acute to acuminate or sometimes obtuse; primary veins 4–11 on each side of midrib, slightly raised or obscure."

402	Allelopathic	
	Source(s)	Notes
	Lichstein, J. W., Grau, H. R., & Aragón, R. (2004). Recruitment limitation in secondary forests dominated by an exotic tree. Journal of Vegetation Science, 15(6), 721-728	[Unknown] " <i>Ligustrum</i> dominance was a better predictor of native sapling and liana abundance than soil and light variables correlated with <i>Ligustrum</i> invasion. This may be because <i>Ligustrum</i> dominance is a better surrogate for resource availability than our densiometer and nutrient pool measurements. Alternatively, <i>Ligustrum</i> may affect recruitment via below-ground processes other than nutrient competition (e.g. allelopathy or competition for space)."

403	Parasitic	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, eds. 1996. Flora of China. Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Shrubs or trees to 25 m, evergreen or deciduous, glabrous." [Oleaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. Plant Protection Quarterly, 14 (4), 122-130	"Both species of privet have associated with the poisoning of stock (mainly horses) "... "feeding fruit and foliage to pigs and fruits to sheep has resulted in no apparent ill effects"

Qsn #	Question	Answer
	Miller, J. H. & Miller, K. V. 2005. Forest Plants of the Southeast and Their Wildlife Uses. University of Georgia Press, Athens, GA	"Where abundant, young privet is an important, high-quality winter browse for White-tailed Deer." ... "Leaves, stems and bark are preferred Beaver forage."

405	Toxic to animals	y
	Source(s)	Notes
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"The leaves and fruit of this species are poisonous to livestock and humans. In South Africa, broad leaf privet (<i>Ligustrum lucidum</i>) pollen is known to cause significant irritation to hay fever sufferers."
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14 (4), 122-130	Both species of privet have associated with the poisoning of stock (mainly horses) and people (especially children)

406	Host for recognized pests and pathogens	y
	Source(s)	Notes
	Huang, B. K., Qiu, J. H., & Jiang, F. (1983). A study of the citrus root mealybug-a new insect on citrus in China. <i>Journal of Fujian Agricultural College</i> , 12(3), 183-193	"Abstract : <i>Rhizococcus kondonis</i> Kuw. was found for the first time in China in 1979, causing severe damage to the roots of citrus in some groves in Shaowu County, Fujian Province. The scale insect was also found on 4 other plant species, including <i>Alternanthera sessilis</i> , <i>Physalis alkekengi</i> and <i>Ligustrum lucidum</i> . There were 4 nymphal instars and 3 generations a year in Shaowu County, both nymphs and young adults overwintering. Adults were observed in late March and April, and eggs were present in mid-April, the last decade of July and in September October. Vertical distribution in the soil ranged from 3-5 to 30-40 cm, depending on the penetration of the rootlets on which the pest fed. The apterous males were not abundant. Good control was obtained with parathion, deltamethrin, phoxim, fluoroacetamide, phosphamidon, methamidophos, dichlorvos (DDVP) and dimethoate. "
	Sinacori, A., & Mineo, N. (1997). Two new host plants of <i>Prays citri</i> and <i>Contarinia</i> sp.(?) <i>citri</i> [<i>Casimiroa edulis</i> - <i>Ligustrum lucidum</i> -Sicily]. <i>Informatore Fitopatologico</i> , 47 (7/8): 13-15	"In Sicily, flowers of <i>Casimiroa edulis</i> were found to be heavily infested with both <i>Prays citri</i> and <i>Contarinia citri</i> . <i>P. citri</i> was also observed on flowers of <i>Ligustrum lucidum</i> . "
	Gilman, E.F. & Watson, D.G. 1993. <i>Ligustrum lucidum</i> . Glossy Privet. Fact Sheet ST-354.IFAS, University of Florida, Gainesville, FL	"Pests Scales, white-flies, sooty-mold, and nematodes are problems but not serious. Diseases Root rot can be a problem in wet soil."

407	Causes allergies or is otherwise toxic to humans	y
	Source(s)	Notes
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Berries poisonous, highly toxic, may be fatal if eaten; used for vertigo, tinnitus, dizziness, stomachache, and as a tonic."
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14 (4), 122-130	"Both species of privet have associated with the poisoning of stock (mainly horses) and people (especially children)"

Qsn #	Question	Answer
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"The leaves and fruit of this species are poisonous to livestock and humans. In South Africa, broad leaf privet (<i>Ligustrum lucidum</i>) pollen is known to cause significant irritation to hay fever sufferers."
	Nelson, L., Shih, R.D. & Balick, M.J. 2007. Handbook of Poisonous and Injurious Plants, The New York Botanical Garden. Springer, New York, NY	"Toxic Part: The whole plant, including the berries, is toxic. Toxin: Syringin (<i>ligustrin</i>), an irritant glycoside. Clinical Findings: Nausea, vomiting, abdominal cramping, and diarrhea may occur. There are no reported cases of poisoning in humans. In ruminants, neurotoxicity (unsteady gait, weakness) is reported to occur. Management: If severe gastrointestinal symptoms occur, intravenous hydration, antiemetics, and electrolyte replacement may be necessary, particularly in children. Consultation with a Poison Control Center should be considered."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14 (4), 122-130	"The difficulty in using fire to control <i>L. lucidum</i> is that by the time this species becomes dominant, the tufted perennial grasses such as kangaroo grass which normally carry fire through eucalyptus woodlands and forest have been shaded out."

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14 (4), 122-130	"Both species of privet can germinate and grow under very low light intensity"
	CABI, 2017. Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	" <i>L. lucidum</i> is tolerant of shade, partial shade and full-sun conditions (Gavier-Pizarro et al., 2012). However it rarely establishes in an open habitat (Aragón and Groom, 2003). It has higher establishment success with some canopy cover due to enhanced dispersal (i.e. abundance of bird perches) and greater germination rates (Aragón and Groom, 2003). Although seedlings can survive under dense shade, they will require forest gaps or low density forest to grow and outcompete rest of species (Swarbrick et al., 1999). In general, initial establishment of <i>L. lucidum</i> is enhanced by local disturbance, as it provides both better light and soil conditions."
	Gilman, E.F. & Watson, D.G. 1993. <i>Ligustrum lucidum</i> . Glossy Privet. Fact Sheet ST-354. IFAS, University of Florida, Gainesville, FL	"Light requirement: tree grows in part shade/part sun; tree grows in full sun"
	Langeland, K.A., Cherry, H.M., McCormick, C.M. & Craddock Burks, K.A. 2008. Identification & Biology of Non-Native Plants in Florida's Natural Areas. Second Edition. IFAS Publications, Gainesville, FL	"tolerates full sun to partial shade, and is moderately drought-tolerant (Gilman and Watson 1993d)."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes

Qsn #	Question	Answer
	CABI, 2017. Invasive Species Compendium. Wallingford , UK: CAB International. www.cabi.org/isc	"It is not very demanding in terms of soil conditions as it can grow well both in sand or clay soils. Very poor sandstone soils might reduce its performance whilst high phosphorous levels can increase its growth (Swarbrick et al., 1999). It prefers moderate to high levels of moisture throughout the year."
	Gilman, E.F. & Watson, D.G. 1993. <i>Ligustrum lucidum</i> . Glossy Privet. Fact Sheet ST-354.IFAS, University of Florida, Gainesville, FL	"Soil tolerances: clay; loam; sand; acidic; alkaline; well-drained" ... "Tree <i>Ligustrum</i> will grow in full sun or partial shade on various soil types, and is moderately salt-tolerant. The tree seems to thrive on neglect and is used along highways (unirrigated) as a screen for headlights. Clay soil and high pH do not seem to cause any problems as long as water drains away from the roots."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, eds. 1996. Flora of China. Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Shrubs or trees to 25 m, evergreen or deciduous, glabrous."

412	Forms dense thickets	y
	Source(s)	Notes
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"Broad-leaf privet (<i>Ligustrum lucidum</i>) can form dense thickets, particularly in coastal areas, which shade out and displace rainforest species. This can transform the habitat available to native animals, creating an ecosystem dominated by weeds, and disrupt the access of animals to natural corridors."
	Miller, J. H. & Miller, K. V. 2005. Forest Plants of the Southeast and Their Wildlife Uses. University of Georgia Press, Athens, GA	"Dense thickets formed by Chinese privet provide cover for numerous wildlife species."
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. Plant Protection Quarterly, 14 (4), 122-130	" <i>L. lucidum</i> tends to form monospecific stands with plants of different sizes and ages"

501	Aquatic	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, eds. 1996. Flora of China. Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[Terrestrial] "Shrubs or trees to 25 m, evergreen or deciduous, glabrous." ... "Woods; below 2900 m."

502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 6 Aug 2017]	Family: Oleaceae Tribe: Oleaceae

Qsn #	Question	Answer
503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 6 Aug 2017]	Family: Oleaceae Tribe: Oleaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, eds. 1996. Flora of China. Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Shrubs or trees to 25 m, evergreen or deciduous, glabrous."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, eds. 1996. Flora of China. Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	[No evidence] "Woods; below 2900 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Xizang, Yunnan, Zhejiang."

602	Produces viable seed	y
	Source(s)	Notes
	Aragón, R., & Groom, M. (2003). Invasion by <i>Ligustrum lucidum</i> (Oleaceae) in NW Argentina: early stage characteristics in different habitat types. <i>Revista de Biología Tropical</i> , 51(1), 59-70	" <i>L. lucidum</i> is a prolific fruit producer, is capable of germinating and surviving in a broad range of forest environments, it is relatively shade tolerant and has higher survival and faster growth rate in comparison to the most common native species. All these characteristics highlight its potency as a successful invader, and point to few vulnerabilities that could be targets of control measures."
	Gilman, E.F. & Watson, D.G. 1993. <i>Ligustrum lucidum</i> . Glossy Privet. Fact Sheet ST-354. IFAS, University of Florida, Gainesville, FL	"Propagation is by seeds or grafting of cultivars."
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14(4), 122-130	"reproduce naturally only by seed"

Qsn #	Question	Answer
603	Hybridizes naturally	
	Source(s)	Notes
	Johnson, S. B. (2009). Privet species—are we sitting on species time bombs?. In Proceedings of the 15th Biennial NSW Weeds Conference, Narrabri	"Hybrids between the various species of <i>Ligustrum</i> have not been reported (Swarbrick et al. 1999), with one possible exception between <i>L. ovalifolium</i> and <i>L. sinense</i> (Goulding 1973)."
	Van Huylbroeck, J., Van Laere, K., Eeckhaut, T., & Van Bockstaele, E. (2004). Interspecific hybridisation in flowering shrubs. <i>Acta Horticulturae</i> 651: 55-62	[Artificial hybridization possible] "Introgression rates of paternal DNA sequences are divergent; only crosses between <i>L. japonicum</i> and <i>L. lucidum</i> were found to be true hybrids."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Aguirre-Acosta, N., Kowaljow, E., & Aguilar, R. (2014). Reproductive performance of the invasive tree <i>Ligustrum lucidum</i> in a subtropical dry forest: does habitat fragmentation boost or limit invasion?. <i>Biological Invasions</i> , 16(7), 1397-1410	"It is a fast-growing, self-compatible, hermaphrodite tree that offers a massive yield of fleshy fruits in late autumn and throughout the winter" ... "The species has a mixed mating system, where the combination of self-compatibility with massive flowering production facultatively assures reproduction via autogamous and geitonogamous crosses (Montaldo 1993)."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Johnson, S. B. (2009). Privet species—are we sitting on species time bombs?. In Proceedings of the 15th Biennial NSW Weeds Conference, Narrabri	"Pollination occurs by medium sized insects such as honeybees, and also flies and beetles, with moths and butterflies also playing a minor role (Benson and McDougall 1999, Swarbrick et al. 1999). These insects are generally attracted by the distinctive scent, and the pale flowers that contrast with the dark green foliage. Pollination occurs under warm and moist conditions."
	Hury, V. M. B., & Moller, H. (1995). An assessment of the contribution of honey bees (<i>Apis mellifera</i>) to weed reproduction in New Zealand protected natural areas. <i>New Zealand Journal of Ecology</i> , 19: 111-122	" <i>Senecio mikanioides</i> , <i>Ligustrum lucidum</i> , and <i>Hakea salicifolia</i> belong to known honey producing genera and may be visited by honey bees in New Zealand."

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	CABI, 2017. <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	" <i>L. lucidum</i> can also spread vegetatively by re-sprouting from stems and producing suckers at the tree base (Ferrerias et al., 2008; Swarbrick et al., 1999). Both sexual and vegetative strategies have been seen in the native and introduced ranges. For instance, Lichstein et al. (2004) described that most recruitment of <i>L. lucidum</i> in montane forest of north-western Argentina appears to be from sprouting from the roots. Stem cuttings also stimulate re-growth under a wide range of light availability (Swarbrick et al., 1999); most horticultural varieties are propagated using stem cuttings (Swarbrick et al., 1999)." ... "Plants of <i>L. lucidum</i> may live for up to a century. However, reaching senescence the tree produces suckers around the base which ultimately will result in new growth and new individuals (Swarbrick et al., 1999)."

Qsn #	Question	Answer
	Johnson, S. B. (2009). Privet species—are we sitting on species time bombs?. In Proceedings of the 15th Biennial NSW Weeds Conference, Narrabri	" <i>Ligustrum lucidum</i> can also sucker (Westoby et al. 1983, Figure 11), although whether this is only from damaged stems and roots, or regrowth from cut stumps is unclear (Buchanan 1989a, Blood 2001, SCW 2008). Vegetative encroachment of <i>L. lucidum</i> through the production of multiple shoots also occurs (Lichstein et al. 2004). There is some evidence that <i>L. vulgare</i> suckers (Miller 2003, M. Baker pers. comm.)."
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14 (4), 122-130	"reproduce naturally only by seed" [But see Johnson 2009]
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"This plant reproduces by seed, which are readily dispersed by fruit-eating (i.e. frugivorous) birds and other animals. They may also be spread about by water and in dumped garden waste. The bunches of mature fruit are also used in flower arrangements."

607	Minimum generative time (years)	>3
	Source(s)	Notes
	Johnson, S. B. (2009). Privet species—are we sitting on species time bombs?. In Proceedings of the 15th Biennial NSW Weeds Conference, Narrabri	"Seedlings may remain juvenile for up to four years, plants can produce up to 10 000 000 seeds at maturity." ... " <i>Ligustrum</i> species appear to have a long juvenile period before reaching reproductive maturity, for example four years in <i>L. lucidum</i> (Blood 2001). There is no information on the juvenile period of other <i>Ligustrum</i> species."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y
	Source(s)	Notes
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"This plant reproduces by seed, which are readily dispersed by fruit-eating (i.e. frugivorous) birds and other animals. They may also be spread about by water and in dumped garden waste. The bunches of mature fruit are also used in flower arrangements."
	Chacalo, A., Aldama, A., & Grabinsky, J. (1994). Street tree inventory in Mexico City. <i>Journal of arboriculture</i> , 20, 222-222.	[street tree] "Nine species represented more than 72% of the trees - in descending order of frequency, <i>Fraxinus uhdei</i> (225), <i>Ligustrum lucidum</i> (165), <i>Cupressus lindleyi</i> [<i>C. lusitanica</i>] and <i>C. sempervirens</i> (128), <i>Jacaranda mimosifolia</i> (100), <i>Erythrina coralloides</i> (74), <i>Eucalyptus globulus</i> and <i>E. camaldulensis</i> (74) and <i>Ulmus parvifolia</i> (70)."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Staples, G. W., Imada, C.T. & Herbst, D. R. 2003. New Hawaiian plant records for 2001. Bishop Museum Occasional Papers. 74: 7-21	"Long cultivated as a hedge plant and small shade tree in the Hawaiian Islands, <i>L. lucidum</i> is abundant on the island of Hawai'i."
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14 (4), 122-130	"widely cultivated in Europe and introduced to Australia and New Zealand as hedges and shade trees."

Qsn #	Question	Answer
703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Major Pathway/s: Contaminant, Crop, Forestry, Herbal, Ornamental"
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"They may also be spread about by water and in dumped garden waste. The bunches of mature fruit are also used in flower arrangements."

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, eds. 1996. Flora of China. Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Fruit deep blue-black, ripening red-black, reniform or nearly so, 7–10 × 4–6 mm."
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. Plant Protection Quarterly, 14 (4), 122-130	"Seed dispersal is principally by birds"
	Staples, G. W., Imada, C.T. & Herbst, D. R. 2003. New Hawaiian plant records for 2001. Bishop Museum Occasional Papers. 74: 7-21	"The glossy blue-black drupes are bird dispersed."

705	Propagules water dispersed	y
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Dispersed by: Humans, Animals, Flyers, Water, Escapee"
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"This plant reproduces by seed, which are readily dispersed by fruit-eating (i.e. frugivorous) birds and other animals. They may also be spread about by water and in dumped garden waste. The bunches of mature fruit are also used in flower arrangements."
	Staples, G. W., Imada, C.T. & Herbst, D. R. 2003. New Hawaiian plant records for 2001. Bishop Museum Occasional Papers. 74: 7-21	"trees naturalizing and spreading along small stream, ca. 550 m,"

706	Propagules bird dispersed	y
	Source(s)	Notes
	Ferreras, A. E., Torres, C., & Galetto, L. (2008). Fruit removal of an invasive exotic species (<i>Ligustrum lucidum</i>) in a fragmented landscape. Journal of Arid Environments, 72(9), 1573-1580	"Each plant produces a high number of black-blue fruits (ca. 5–8mm diameter) with synchronic maturation (Moltaldo, 1993; Parodi, 1980). Different species of birds have been reported as dispersal agents of this species for other regions of Argentina (Arago'n and Morales, 2003; Montaldo, 1993, 2000)."
	Wu, Z. Y. & P. H. Raven, eds. 1996. Flora of China. Vol. 15 (Myrsinaceae through Loganiaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis	"Fruit deep blue-black, ripening red-black, reniform or nearly so, 7–10 × 4–6 mm."
	Staples, G. W., Imada, C.T. & Herbst, D. R. 2003. New Hawaiian plant records for 2001. Bishop Museum Occasional Papers. 74: 7-21	"The glossy blue-black drupes are bird dispersed."

Qsn #	Question	Answer
	Miller, J. H. & Miller, K. V. 2005. Forest Plants of the Southeast and Their Wildlife Uses. University of Georgia Press, Athens, GA	"The persistent fruits are important winter and early spring food sources for Raccoon and numerous bird species including Northern Mockingbirds, Cedar Waxwings, Eastern Bluebirds, American Robins, and Hermit Thrushes."
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"This plant reproduces by seed, which are readily dispersed by fruit-eating (i.e. frugivorous) birds and other animals."

707	Propagules dispersed by other animals (externally)	y
	Source(s)	Notes
	Ferreras, A. E., Torres, C., & Galetto, L. (2008). Fruit removal of an invasive exotic species (<i>Ligustrum lucidum</i>) in a fragmented landscape. <i>Journal of Arid Environments</i> , 72(9), 1573-1580	"Ants (<i>Acromyrmex</i> sp., Formicidae, Myrmicinae) were also observed collecting fruits of <i>L. lucidum</i> from the ground. A large number of seeds without the fleshy pulp was observed near the ant nests, and between the refuse dumps. A few weeks later, many seedlings of <i>L. lucidum</i> were observed growing at these sites." ... "Ants were fortuitously seen carrying <i>L. lucidum</i> fruits and can be considered as secondary agents of seed dispersal. Secondary dispersal by ants was found in many exotic species in their new geographical range (e.g., Richardson et al., 2000). The ants deposited seeds without the fleshy pulp in the refuse piles. This process may reduce fungal seed infection, and could increase seed germination success, as was reported for some tree species (Pizo et al., 2005)."
	CABI, 2017. <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"Ants have also been identified as a potential secondary dispersal vector of seeds in Argentina; ants dispose the seed without the pulp, probably enhancing germination rates (Ferreras et al., 2008)."

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Swarbrick, J. T., Timmins, S. M., & Bullen, K. M. (1999). The biology of Australian weeds. 36. <i>Ligustrum lucidum</i> Aiton and <i>Ligustrum sinense</i> Lour. <i>Plant Protection Quarterly</i> , 14(4), 122-130	"Seed dispersal is principally by birds"
	Langeland, K.A., Cherry, H.M., McCormick, C.M. & Craddock Burks, K.A. 2008. <i>Identification & Biology of Non-Native Plants in Florida's Natural Areas</i> . Second Edition. IFAS Publications, Gainesville, FL	"Seeds germinated equally well whether or not they passed through bird digestive tracts (Montaldo 1993)."

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes

Qsn #	Question	Answer
	Westoby, M., Dalby, J., & Adams-Acton, L. (1983). Fruit production by two species of privet, <i>Ligustrum sinense</i> Lour. and <i>L. lucidum</i> WT Ait., in Sydney. <i>Australian Weeds</i> , 2(4), 127-129	"Abstract : Fruit production by <i>Ligustrum sinense</i> and <i>L. lucidum</i> was studied at 58 sites in urban bushland in the N. suburbs of Sydney in 1978, and in a further 8 sites (<i>L. sinense</i>) in 1979. <i>L. sinense</i> produced 1300 fruits/m ² of canopy while <i>L. lucidum</i> produced 400/m ² . Fruit production in both spp. was reduced with increasing shade and was lower on smaller diam. shoots of <i>L. sinense</i> . There was variation in fruit production between shoots of similar sizes and at different sites which was not correlated with soil fertility. Sites with high <i>L. sinense</i> fruit production in 1979 were not the same as those with high production in 1978."
	Queensland Government. (2017). Weeds of Australia. <i>Ligustrum lucidum</i> . http://keyserver.lucidcentral.org . [Accessed 7 Aug 2017]	"Its annual seed production is enormous, it can invade relatively intact rainforest communities, and it quickly outcompetes riparian vegetation." [Quantitative seed outputs unspecified]
	CABI, 2017. <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	" <i>L. lucidum</i> reproduces primarily by the production of a large number of seeds (Swarbrick et al., 1999); annually up to 1-3 million seeds can be produced per tree in mature stands (van Aalst, 1992). Fruit production can vary largely between years depending on climate conditions and masting (Westoby et al., 1983). During initial stages, seeds have extremely high viability (>90%) (Swarbrick et al., 1999)."
	Langeland, K.A., Cherry, H.M., McCormick, C.M. & Craddock Burks, K.A. 2008. <i>Identification & Biology of Non-Native Plants in Florida's Natural Areas</i> . Second Edition. IFAS Publications, Gainesville, FL	"Over 30% of fruits contain two seeds, and one shoot may have over 10,000 fruits (Westoby et al. 1983). One plant may produce over 200,000 fruits (Montaldo 1993)."

802	Evidence that a persistent propagule bank is formed (>1 yr)	y
	Source(s)	Notes
	Panetta, F. D. (2000). Fates of fruits and seeds of <i>Ligustrum lucidum</i> WT Ait. and <i>L. sinense</i> Lour. maintained under natural rainfall or irrigation. <i>Australian Journal of Botany</i> , 48(6), 701-706	"Factors influencing germination and seed survival of <i>Ligustrum lucidum</i> W.T.Ait. and <i>L. sinense</i> Lour., two serious environmental weeds in subcoastal eastern Australia, were investigated in a series of experiments conducted under natural rainfall regimes (field experiments) and under irrigation in a growth tunnel. In the field experiments, no seedlings of either species were observed where seeds and intact fruits had been surface-sown; seedlings originated only from shallowly buried seeds and fruits, with generally higher levels of emergence from seeds. Where soil moisture levels were maintained at or above field capacity, however, moderate to high levels of germination occurred from surface-sown seeds and fruits of both species. Total seedling emergence varied considerably between years for each moisture regime. Seeds of both species were short-lived, with most (>95%) not persisting for 12 months in any case."
	Johnson, S. B. (2009). Privet species—are we sitting on species time bombs?. In <i>Proceedings of the 15th Biennial NSW Weeds Conference</i> , Narrabri	"Field studies indicate <i>L. lucidum</i> seed has a maximum longevity of 1 -2.5 years in the soil whereas no viable seeds of <i>L. sinense</i> were recorded six months after sowing (van Aalst 1992, in Panetta 2000, Panetta 2000)."
	Langeland, K.A., Cherry, H.M., McCormick, C.M. & Craddock Burks, K.A. 2008. <i>Identification & Biology of Non-Native Plants in Florida's Natural Areas</i> . Second Edition. IFAS Publications, Gainesville, FL	"Seeds are bird dispersed and survive for up to 2 years in the soil seed bank (van Aalst 1992), but older seeds may have low viability (Bardsley 1979)."

Qsn #	Question	Answer
803	Well controlled by herbicides	y
	Source(s)	Notes
	Madden, J. E., & Swarbrick, J. T. (1990). Chemical control of <i>Ligustrum lucidum</i> . <i>Plant Protection Quarterly</i> , 5(4), 145-147	"Metsulfuron methyl, triclopyr, glyphosate, hexazinone, 2,4-D amine and 2,4-D acid were applied to <i>L. lucidum</i> of mixed maturity by stem injection, wet stem or cut stump methods, during trials in bushland at Toowoomba, Queensland. After 14 months stem injection of 1.2% a.i. metsulfuron and cut stump applications of 0.06% metsulfuron, 4.8% triclopyr and 3% 2,4-D and all gave >90% plant mortality. Of these treatments, stem injection of 1.2% metsulfuron methyl had the lowest cost and 0.06% metsulfuron methyl was the lowest cost cut stump treatment."
	CABI, 2017. <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"The most common method to control <i>L. lucidum</i> is to cut the tree and apply a herbicide (McGregor, 2000). Stem injections are suitable for large trees close to other vegetation (van Oosterhout et al., 2016) and stem injection using metsulfuron methyl seems to be the least costly (i.e. 40% cheaper than any other treatment) (Madden and Swarbrick, 1990). Among other chemicals, triclopyr was found to be more effective than hexazinone and glyphosate (Mowatt, 1981). In general, herbicides are most effective when applied during the active growing season. Van Oosterhout et al. (2016) provide further details on control methods."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Johnson, S. B. (2009). Privet species—are we sitting on species time bombs?. In <i>Proceedings of the 15th Biennial NSW Weeds Conference</i> , Narrabri	" <i>Ligustrum lucidum</i> can also sucker (Westoby et al. 1983, Figure 11), although whether this is only from damaged stems and roots, or regrowth from cut stumps is unclear (Buchanan 1989a, Blood 2001, SCW 2008). Vegetative encroachment of <i>L. lucidum</i> through the production of multiple shoots also occurs (Lichstein et al. 2004). There is some evidence that <i>L. vulgare</i> suckers (Miller 2003, M. Baker pers. comm.)."
	Langeland, K.A., Cherry, H.M., McCormick, C.M. & Craddock Burks, K.A. 2008. <i>Identification & Biology of Non-Native Plants in Florida's Natural Areas</i> . Second Edition. IFAS Publications, Gainesville, FL	"Mature plants regenerate rapidly from cut stumps (Mowatt 1981) and will resprout in shade (van Aalst 1992); however, fruit production declines in deep shade (Blood 2001)"

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	CABI, 2017. <i>Invasive Species Compendium</i> . Wallingford, UK: CAB International. www.cabi.org/isc	"The leaves of <i>Ligustrum</i> species are high in phenolic compounds that defend against herbivores, especially insects. The compounds work by inhibiting digestive enzymes and proteins (Batcher, 2000). A literature review suggested that there were up to 99 different invertebrates attacking species of <i>Ligustrum</i> (McGregor, 2000)." ... "According to Farr and Rossman (2016) there are a total of 58 fungal-plant associations recorded from both the native and introduced ranges."
	WRA Specialist. 2017. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Grows in temperate to subtropical climates, & elevation range exceeds 1000 m, demonstrating environmental versatility
- Naturalized on Hawaii Island, North and South America, Australia, New Zealand, Mozambique, and South Africa
- An environmental weed in Australia and Argentina
- Other *Ligustrum* species are invasive
- Toxic to animals (horses) and people
- Host of pathogens
- Shade tolerant
- Tolerates many soil types
- Forms dense stands, excluding other vegetation
- Reproduces by seeds & vegetatively by suckering
- Self-compatible
- Seeds dispersed by birds, other frugivorous animals, ants, water, dumped garden waste & intentionally by people
- Prolific fruit & seed production
- Seeds can persist in the soil for 1-2.5 years
- Able resprout from cut stumps without herbicide treatment

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Browsed by deer, pigs & sheep (palatable despite reports of toxicity)
- Ornamental
- Reaches maturity in 4+ years
- Herbicides may provide effective control