

Taxon: Ligustrum japonicum Thunb.

Family: Oleaceae

Common Name(s): Japanese privet
Japanese wax-leaf privet
Japanse liguster
wax-leaf privet

Synonym(s): L. japonicum var. rotundifolium
Ligustrum coriaceum Carrière

Assessor: Chuck Chimera

Status: Assessor Approved

End Date: 21 Aug 2017

WRA Score: 9.0

Designation: H(HPWRA)

Rating: High Risk

Keywords: Ornamental Tree, Environmental Weed, Toxic, Cold-Stratified, 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)	y
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	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	y=1, n=0	n
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	n
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	y
408	Creates a fire hazard in natural ecosystems		

Qsn #	Question	Answer Option	Answer
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		
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	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)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
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. 2007. <i>Ligustrum japonicum</i> : Japanese Privet. ENH-511. Revised. Institute of Food & Agricultural Sciences, University of Florida, Gainesville FL. http://edis.ifas.ufl.edu/st352 . [Accessed 17 Aug 2017]	[Certain cultivars may be less prone to pests or pathogens. Otherwise, no evidence of domestication] "Many cultivars are available and plants grafted onto <i>L. quihoui</i> for protection against nematodes are preferred, when available. 'Silver Star' has deep green leaves mottled with grey and edged in creamy white; 'Texanum' is very similar to the species but is lower-growing and has denser growth; 'Fraseri' has yellow to yellow-green new growth; 'Jack Frost' has glossy green leaves with a thin edge of creamy white; 'Lake Tresca' has small leaves and the lower branches droop to form a mound; 'Lusterleaf' has large, thick leaves; 'Suwanee River' has compact erect branches; and 'Variegatum' has leaves variegated and edged with white. <i>Ligustrum x vicaryi</i> has golden variegated leaves, with bright yellow new growth."

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 8 Aug 2017]	"Native: Asia-Temperate Eastern Asia: Japan - Honshu, - Kyushu, - Ryukyu Islands, - Shikoku; Korea, South; Taiwan"
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"Seeds work well if cleaned thoroughly and stored at 32-50°F for two to three months before planting. The cold exposure (called stratification) is necessary for the embryo inside the seed to develop fully; without it, germination does not occur."

Qsn #	Question	Answer
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]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Ervin, G. N., Madsen, J. D., & Wersal, R. M. (2007). Invasive Species Fact Sheet: Japanese Privet (<i>Ligustrum japonicum</i> Thunb.). Mississippi State University: GeoResources Institute. https://www.gri.msstate.edu/ . [Accessed 18 Aug 2017]	"Japanese privet will invade both lowland and upland habitats, including floodplains, forests, wetlands and fields, but it usually is more prevalent in lowland habitats, typically at elevations less than 915m (3000ft). All the privets are frequently seen along roadsides and other disturbed areas."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Taiwan; [Japan] Honshu, Kyushu, Ryukyu Archipelago, Shikoku; Republic of Korea"
	Gilman, E.F. & Watson, D.G. 2007. <i>Ligustrum japonicum</i> : Japanese Privet. ENH-511. Revised. Institute of Food & Agricultural Sciences, University of Florida, Gainesville FL. http://edis.ifas.ufl.edu/st352 . [Accessed 17 Aug 2017]	"USDA hardiness zones: 7B through 10A"

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Florida (naturalized) Taiwan; [Japan] Honshu, Kyushu, Ryukyu Archipelago, Shikoku; Republic of Korea,"
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	" <i>Ligustrum japonicum</i> ... Preferred Climate/s: Mediterranean, Subtropical, Tropical"

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Nesom, G. L. (2009). Taxonomic overview of <i>Ligustrum</i> (Oleaceae) naturalized in North America north of Mexico. <i>Phytologia</i> , 91(3), 467-482	"Ala., Ark., Fla., Ga., La., Miss., S.C., Tenn., Tex., Va.; native to Japan and Korea; introduced also in West Indies (Puerto Rico), Africa, Australia, Pacific Islands (Hawaii)."
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"History and use. Introduced from Japan and Korea in 1845 and 1794, respectively. Widely planted as ornamentals and escaped."
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"It is commonly grown in Hawaii as a clipped hedge or background or foundation planting, and it is ideal for topiary, something not often seen in Island gardens."

301	Naturalized beyond native range	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Nelson, G. 2010. The Trees of Florida. A Reference and Field Guide. 2nd Edition. Pineapple Press Inc, Sarasota, FL	"Distribution: A non-native species often seen in cultivation; rarely and spottily naturalized in moist, mixed woodlands of northern Florida, south to about Volusia County."
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 16 Aug 2017]	"Naturalized: . natzd. elsewhere"
	Batcher, M.S. 2000. Element Stewardship abstract for <i>Ligustrum</i> spp. Privet. The Nature Conservancy, Arlington, VA. https://www.invasive.org/ . [Accessed]	"Reported occurrences of the different <i>Ligustrum</i> spp. in North America include:" ... " <i>L. japonicum</i> : Alabama, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and Puerto Rico."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	[Naturalized & weedy in a number of locations] " <i>Ligustrum japonicum</i> ... References: United States of America-E- 411, United States of America-CE-617, South Africa-X-63, United States of America-E-77, United States of America- E-80, Global-NW-85, South Africa-W-95, South Africa-CX-283, South Africa-EW- 279, United States of America-N-101, United States of America-W-112, United States of America-CE-142, Australia-E- 380, United States of America-I-628, Japan-I-741, South Africa-I-759, Mediterranean-I-775, United States of America-E-151, Global-W-788, Mediterranean-W-951, Italy-N-1006, Portugal-N-1006, Europe-N-819, United States of America-W-1103, South Africa- X-1112, Africa-X-1127, United States of America-CE-1244, Georgia-UR-1250, Italy-U-251, Brazil-I-984, Brazil-I-1328, Global-W-1376, Global-I-1404, Spain-U- 1454, Argentina, Brazil and Uruguay-I- 1476, Cuba-N-1505, Brazil-N-1597, Norway-W-1609, South Africa-E-1646, Global-CD-1611, Lesotho-X-1127, United States of America-E-1736, Brazil-I-1876, Italy-U-1887, France-R-1942, -I-, -I-, South Africa-N-1991, South Africa-NR- 2017, Cuba-NI-2055, Armenia-W-1977, Brazil-W-1977, Croatia-W-1977, Cuba-W- 1977, France-W-1977, Italy-W-1977, Norway-W-1977, South Africa-W-1977, Spain-W-1977."

302	Garden/amenity/disturbance weed	y
	Source(s)	Notes
	Ervin, G. N., Madsen, J. D., & Wersal, R. M. (2007). Invasive Species Fact Sheet: Japanese Privet (<i>Ligustrum japonicum</i> Thunb.). Mississippi State University: GeoResources Institute. https://www.gri.msstate.edu/ . [Accessed]	"Japanese privet will invade both lowland and upland habitats, including floodplains, forests, wetlands and fields, but it usually is more prevalent in lowland habitats, typically at elevations less than 915m (3000ft). All the privets are frequently seen along roadsides and other disturbed areas."
	Nelson, G. 2010. The Trees of Florida. A Reference and Field Guide. 2nd Edition. Pineapple Press Inc, Sarasota, FL	"Though it is robust and easy to grow in full sun or partial shade, it is potentially invasive and is closely related to glossy privet (<i>L. lucidum</i>) and Chinese privet (<i>L. sinense</i>), both of which are listed as Category I pest plants by the Florida Exotic Pest Plant Council. Landscape or gardening use of this plant should be avoided."

Qsn #	Question	Answer
	Dave's Garden. 2017. Japanese Privet, Waxleaf Privet - <i>Ligustrum japonicum</i> . http://davesgarden.com/guides/pf/go/51523/ . [Accessed 21 Aug 2017]	[Garden weed in Texas] "On Dec 8, 2011, Sandwichkatexan from Copperas Cove, TX wrote: I hate this plant with a passion ! Whoever had this house before I bought it planted this awful plague of a tree and now I have to just deal with it . 1, it is messy it has these black berries that are food for every bird in the entire state to eat . 2, Everywhere one of those berries lands a new tree starts . 3, Every year I tear more and more of these d*** things out of my flowerbeds and no matter what you do more just pop right up to take their place . I am so sick of this G.D. tree I am ready to pour gasoline on its roots and call it a day . It ruins my flowerbeds with all its volunteers that just seem to help themselves to my containers , cracks in the cement, the foundation even in the gutters . INVASIVE INVASIVE INVASIVE pest of a godforsaken tree . Please excuse my ranting as I am just frustrated with this plant ."
	Batcher, M.S. 2000. Element Stewardship abstract for <i>Ligustrum</i> spp. Privet. The Nature Conservancy, Arlington, VA. https://www.invasive.org/ . [Accessed]	Several <i>Ligustrum</i> species have become common invaders of cultivated landscapes, disturbed areas and wildlands throughout the U.S. <i>L. japonicum</i> is found in the Southeast and in Puerto Rico.

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	y
	Source(s)	Notes
	Maddox, V., Byrd Jr, J., & Serviss, B. (2010). Identification and control of invasive privets (<i>Ligustrum</i> spp.) in the middle southern United States. <i>Invasive Plant Science and Management</i> , 3(4), 482-488	"Common privet is a Rank 1 (severe) threat and Japanese privet is a Rank 2 (significant) threat in Tennessee natural areas (Miller et al. 2004)."
	Ervin, G. N., Madsen, J. D., & Wersal, R. M. (2007). Invasive Species Fact Sheet: Japanese Privet (<i>Ligustrum japonicum</i> Thunb.). Mississippi State University: GeoResources Institute. https://www.gri.msstate.edu/ . [Accessed]	"Japanese privet, which is shade tolerant, may occur as single plants or in thickets, frequently occurring in the same habitats as Chinese privet but generally not as abundantly as the latter. Japanese privet will invade both lowland and upland habitats, including floodplains, forests, wetlands and fields, but it usually is more prevalent in lowland habitats, typically at elevations less than 915m (3000ft). All the privets are frequently seen along roadsides and other disturbed areas."
	Batcher, M.S. 2000. Element Stewardship abstract for <i>Ligustrum</i> spp. Privet. The Nature Conservancy, Arlington, VA. https://www.invasive.org/ . [Accessed]	" <i>Ligustrum</i> spp. can form dense thickets that outcompete native vegetation. The privets can invade natural areas such as floodplain forests, woodlands, and disturbed agricultural fields. They generally expand along fence-rows, windbreaks and roadsides (Haragan 1996). In New Zealand, <i>L. sinense</i> may displace the shrub layer and marginal shrubs of alluvial forests, and remain persistent in these areas. <i>L. lucidum</i> replaces midcanopy trees in forests and may completely dominate an area of forest or forest fragments if not controlled (New Zealand Weeds Web Site 1999). <i>L. japonicum</i> and <i>L. sinense</i> invade woodlands in the eastern and southeastern U.S. (Faulkner et al. 1989; Stone 1997). Forest gaps can also become invaded since birds often disperse <i>Ligustrum</i> seeds."

Qsn #	Question	Answer
	Dave's Garden. 2017. Japanese Privet, Waxleaf Privet - <i>Ligustrum japonicum</i> . http://davesgarden.com/guides/pf/go/51523/ . [Accessed 21 Aug 2017]	"On Dec 10, 2008, realbirdlady from Austin, TX (Zone 8b) wrote: Wildlife disperse the seeds from its abundant drupes, which then sprout and grow with amazing vigor... They compete with native understory plants and even suppress native hardwood regeneration." I couldn't have put it any better. They can be controlled in just your own yard, but there's no way to keep the animals from spreading the seeds. So, so sad, what they can do to a woodland ecosystem. Please, please, remove them if you have them, and don't plant any more."

305	Congeneric weed	y
	Source(s)	Notes
	Batcher, M.S. 2000. Element Stewardship abstract for <i>Ligustrum</i> spp. Privet. The Nature Conservancy, Arlington, VA. https://www.invasive.org/ . [Accessed]	"Several <i>Ligustrum</i> species have become common invaders of cultivated landscapes, disturbed areas and wildlands throughout the U.S. <i>L. amurense</i> is found in many eastern and some south-central states. <i>L. japonicum</i> is found in the Southeast and in Puerto Rico. <i>L. lucidum</i> is present from Maryland south and west to Texas. <i>L. sinense</i> and <i>L. obtusifolium</i> are found throughout the eastern and central U.S. <i>L. ovalifolium</i> is common in California and in parts of the central and eastern U.S. <i>L. quihoui</i> is seen in the southeast. <i>L. vulgare</i> is widely naturalized throughout much of the U.S. and southern Canada. <i>Ligustrum</i> spp. may invade natural areas such as floodplain forests and woodlands. They may displace shrubs in regenerating communities and remain persistent in these areas. <i>Ligustrum</i> spp. can form dense thickets that outcompete many kinds of native vegetation."
	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	"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
	Nesom, G. L. (2009). Taxonomic overview of <i>Ligustrum</i> (Oleaceae) naturalized in North America north of Mexico. <i>Phytologia</i> , 91(3), 467-482	[No evidence] "Shrubs or small trees 1–4 m. Branchlets usually glabrous or sometimes minutely puberulent. Leaves evergreen; blades broadly ovate to elliptic-ovate, (3–)4–8(–9) cm x 22–50 mm, glabrous, primary lateral veins 3–4(–5) pairs, abaxial midvein covered by epidermis, apex acute to abruptly acuminate, margins glabrous."

402	Allelopathic	n
	Source(s)	Notes
	Morita, S., Ito, M., & Harada, J. 2005. Screening of an allelopathic potential in arbor species. <i>Weed Biology and Management</i> , 5(1): 26-30	"Table 1. Screening of an allelopathic potential in arbor species by sandwich and dish-pack methods" [<i>Ligustrum japonicum</i> exhibits significant stimulatory effects on the radicles of lettuce]

403	Parasitic	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Nesom, G. L. (2009). Taxonomic overview of <i>Ligustrum</i> (Oleaceae) naturalized in North America north of Mexico. <i>Phytologia</i> , 91(3), 467-482	"Shrubs or small trees 1–4 m. Branchlets usually glabrous or sometimes minutely puberulent. Leaves evergreen; blades broadly ovate to elliptic-ovate, (3–)4–8(–9) cm x 22–50 mm, glabrous, primary lateral veins 3–4(–5) pairs, abaxial midvein covered by epidermis, apex acute to abruptly acuminate, margins glabrous." [Oleaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Fuller, T.C. & McClintock, E.M. 1986. Poisonous plants of California: Issue 53 of California natural history guides. University of California Press, Berkeley and Los Angeles, CA	"Deaths of horses and cows following ingestion of the foliage are recorded, especially from New Zealand and England."
	Maddox, V., Byrd Jr, J., & Serviss, B. (2010). Identification and control of invasive privets (<i>Ligustrum</i> spp.) in the middle southern United States. <i>Invasive Plant Science and Management</i> , 3(4), 482-488	"No biological controls are in widespread use, although deer and other animals can feed on privet."
	Ide, Y., Miyashige, T., Sato, S. & Shijimaya, K. (2001). Grazing in secondary forest developed on abandoned field in southwestern Japan: 1. Characteristics of cattle tracks formed in secondary forest. <i>Grassland Science</i> 47(2): 134-138	"The height of <i>Ligustrum japonicum</i> , which was the index tree used to determine the influence of defoliation, increased with the distance from cattle tracks, and this indicated that the degree of defoliation of the woody species by cattle changes with distance from cattle tracks."
	Takatsuki, S., Kobayashi, M., & Katayama, A. (2011). Rumen contents of the sika deer in Wakayama Prefecture, southern Honshu: A new demonstration of latitudinal variations of the food habits. <i>Mammal Study</i> , 36(2), 73-77	"We analyzed 78 rumen content samples obtained in middle and southern parts of Wakayama Prefecture, the southern-most part of Honshu, the main island of Japan from 1995 to 1998. The rumen contents were dominated by browse (leaves of woody plants). Evergreen broad-leaves such as <i>Quercus</i> spp., <i>Eurya japonica</i> , <i>Ligustrum japonicum</i> , and <i>Aucuba japonica</i> were dominant, occupying 30–45%. Deciduous broad-leaves including <i>Rubus</i> spp., <i>Hydrangea luteo venosa</i> , and <i>Callicarpa mollis</i> accounted for 20–35%. Forbs accounted for 10–20%. Non synthetic organs like twigs and bark accounted for only 2–5%, and graminoids and ferns appeared little. These results suggest that foods of the Wakayama deer are good in quality, particularly in winter. The comparison has shown that the Wakayama deer are categorized into the typical southern browser type. Geographical variations of the food contents of sika deer are demonstrated by greater contributions of graminoids as well as by summer-winter differences in the northern grazer type than the southern browser type. Percentage similarity (PS, Whittaker 1952) well demonstrated seasonal variations of dietary compositions."

Qsn #	Question	Answer
405	Toxic to animals	y
	Source(s)	Notes
	Fuller, T.C. & McClintock, E.M. 1986. Poisonous plants of California: Issue 53 of California natural history guides. University of California Press, Berkeley and Los Angeles, CA	"Deaths of horses and cows following ingestion of the foliage are recorded, especially from New Zealand and England."

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	Gilman, E.F. & Watson, D.G. 2007. <i>Ligustrum japonicum</i> : Japanese Privet. ENH-511. Revised. Institute of Food & Agricultural Sciences, University of Florida, Gainesville FL. http://edis.ifas.ufl.edu/st352 . [Accessed 17 Aug 2017]	"Pests and Diseases None usually serious, although thrips and mites can occasionally discolor foliage. Soil nematodes can cause serious plant decline and they can be prevalent, particularly in sandy soil."
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"Pests and diseases that can cause problems include infestations of scale, whitefly, sooty mold, leaf spot, and nematodes."
	Talavera, M., Magunacelaya, J. C., & Tobar, A. (1999). Plant parasitic nematodes from a forest tree nursery in southern Spain with some notes about the influence of soil storage on the quantitative recovery of <i>Meloidogyne arenaria</i> . <i>Nematology</i> , 1(3), 261-266	" <i>Pratylenchus vulnus</i> (a nematode) was found in <i>Acacia</i> sp., <i>Cupressus macrocarpa</i> , <i>Juglans regia</i> , <i>Ligustrum japonicum</i> , <i>Morus</i> sp., <i>Pinus</i> spp., <i>Populus</i> sp., <i>Salix babilonica</i> and <i>Ulmus pumila</i> . <i>Helicotylenchus</i> sp."

407	Causes allergies or is otherwise toxic to humans	y
	Source(s)	Notes
	Pollen Library. 2017. Japanese Privet (<i>Ligustrum japonicum</i>). http://www.pollenlibrary.com/Specie/Ligustrum+japonicum/ . [Accessed 17 Aug 2017]	"Allergenicity: Japanese Privet (<i>Ligustrum japonicum</i>) is a severe allergen"
	Cariñanos, P., Alcázar, P., Galán, C., & Domínguez, E. (2002). Privet pollen (<i>Ligustrum</i> sp.) as potential cause of pollinosis in the city of Cordoba, south-west Spain. <i>Allergy</i> , 57(2), 92-97	"Background: Privet pollen rarely accounts for more than 1% of the annual total of daily pollen concentrations measured in a city; however in areas where these trees are widely used as ornamentals the amounts collected may be high enough to cause allergy symptoms." ... "Conclusions: Privet pollen should be considered as a potential causative agent of local allergy problems in areas where its presence is extensive and is in combination with other allergens."
	Nelson, L., Shih, R.D. & Balick, M.J. 2007. <i>Handbook of Poisonous and Injurious Plants</i> , The New York Botanical Garden. Springer, New York, NY	" <i>Ligustrum</i> Species ... A number of other species having a generally similar appearance are in cultivation as well and have become naturalized, particularly <i>Ligustrum sinense</i> Lour., and are thought to be toxic. 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. See "Poisoning by Plants with Gastrointestinal Toxins," p. 28."

Qsn #	Question	Answer
	Fuller, T.C. & McClintock, E.M. 1986. Poisonous plants of California: Issue 53 of California natural history guides. University of California Press, Berkeley and Los Angeles, CA	"Toxic part: Berries, leaves, and perhaps other parts." ... Symptoms: In humans, severe gastric irritation, nausea, and vomiting develop shortly after ingestion of large quantities of berries; watery yellowish diarrhea, weak pulse, lowered body temperature, muscular twitching, and convulsions follow. May be fatal. One patient became restless, collapsed, and died a few hours after eating the fruit."

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Virginia Cooperative Extension. 2009. Virginia Firescapes: Firewise Landscaping for Woodland Homes. Virginia Polytechnic Institute and State University, Blacksburg, VA. pubs.ext.vt.edu/430/430-300/430-300_pdf .	"Ligustrum japonicum ... Flammability Rating: H = High" [High flammability in landscaped environments, but unknown in natural settings]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Shin HyunCheol, Park NamChang & Song HoKyung. 1999. The vegetation structure and community classification of <i>Quercus acuta</i> in warm-temperate region of Korean Peninsula. <i>Journal of Forest Science</i> , 60: 11-25	" <i>Camellia japonica</i> , <i>Q. acuta</i> , <i>Eurya japonica</i> , <i>Carpinus laxiflora</i> , <i>Ligustrum japonicum</i> and <i>Cinnamomum japonicum</i> were important in the middle storey,"
	Gilman, E.F. & Watson, D.G. 2007. <i>Ligustrum japonicum</i> : Japanese Privet. ENH-511. Revised. Institute of Food & Agricultural Sciences, University of Florida, Gainesville FL. http://edis.ifas.ufl.edu/st352 . [Accessed 17 Aug 2017]	"Light requirement: full sun, partial sun or partial shade"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Gilman, E.F. & Watson, D.G. 2007. <i>Ligustrum japonicum</i> : Japanese Privet. ENH-511. Revised. Institute of Food & Agricultural Sciences, University of Florida, Gainesville FL. http://edis.ifas.ufl.edu/st352 . [Accessed 17 Aug 2017]	"Soil tolerances: clay; sand; loam; slightly alkaline; acidic; well-drained" ... "Japanese Privet grows in full sun or partial shade and is tolerant of a wide range of soil types, including calcareous clay as long as water is not allowed to stand in the root zone."
	Learn 2 Grow. 2017. <i>Ligustrum japonicum</i> 'Rotundifolium'. http://www.learn2grow.com/plants/ligustrum-japonicum-rotundifolium/ . [Accessed 17 Aug 2017]	"This adaptable shrub will grow in almost any soil type or sun exposure and withstands heavy pruning." ... "Soil pH - Acidic, Neutral, Alkaline; Soil Drainage - Average; Soil type Loam, Sand"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Nesom, G. L. (2009). Taxonomic overview of <i>Ligustrum</i> (Oleaceae) naturalized in North America north of Mexico. <i>Phytologia</i> , 91(3), 467-482	"Shrubs or small trees 1–4 m. Branchlets usually glabrous or sometimes minutely puberulent. Leaves evergreen; blades broadly ovate to elliptic-ovate, (3–)4–8(–9) cm x 22–50 mm, glabrous, primary lateral veins 3–4(–5) pairs, abaxial midvein covered by epidermis, apex acute to abruptly acuminate, margins glabrous."

412	Forms dense thickets	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Ervin, G. N., Madsen, J. D., & Wersal, R. M. (2007). Invasive Species Fact Sheet: Japanese Privet (<i>Ligustrum japonicum</i> Thunb.). Mississippi State University: GeoResources Institute. https://www.gri.msstate.edu/ . [Accessed 17 Aug 2017]	"Japanese privet is thought to have been introduced in 1945. The <i>Ligustrum</i> species easily escape cultivation to invade adjacent areas, where they can form dense monocultural thickets."
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Japanese Privet, <i>Ligustrum japonicum</i> " ... "Ecology. Single plants or thicket-forming, occurring in the same habitats as Chinese privet, but generally not as abundant, depending upon location." ... "Distribution. Found in dense infestations and as scattered escaped plants throughout the region with the exception of south FL."
	Batcher, M.S. 2000. Element Stewardship abstract for <i>Ligustrum</i> spp. Privet. The Nature Conservancy, Arlington, VA. https://www.invasive.org/ . [Accessed 8 Aug 2017]	" <i>Ligustrum</i> spp. can form dense thickets that outcompete many kinds of native vegetation."

501	Aquatic	n
	Source(s)	Notes
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	[Terrestrial] "Ecology. Single plants or thicket-forming, occurring in the same habitats as Chinese privet, but generally not as abundant, depending upon location. Invade both lowland and upland habitats, but usually more prevalent in lowlands."

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 16 Aug 2017]	Family: Oleaceae Tribe: Oleaceae

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 16 Aug 2017]	Family: Oleaceae Tribe: Oleaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Nesom, G. L. (2009). Taxonomic overview of <i>Ligustrum</i> (Oleaceae) naturalized in North America north of Mexico. <i>Phytologia</i> , 91(3), 467-482	"Shrubs or small trees 1–4 m. Branchlets usually glabrous or sometimes minutely puberulent. Leaves evergreen; blades broadly ovate to elliptic-ovate, (3–)4–8(–9) cm x 22–50 mm, glabrous, primary lateral veins 3–4(–5) pairs, abaxial midvein covered by epidermis, apex acute to abruptly acuminate, margins glabrous."

Qsn #	Question	Answer
601	Evidence of substantial reproductive failure in native habitat	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 18 Aug 2017]	"Native: Asia-Temperate Eastern Asia: Japan - Honshu, - Kyushu, - Ryukyu Islands, - Shikoku; Korea, South; Taiwan" [No evidence. Widespread reproduction]

602	Produces viable seed	y
	Source(s)	Notes
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Fruit and seeds. July to February. Conical-shaped, branched terminal clusters of ovoid drupes, each 0.2 to 0.5 inch (5 to 12 mm) long and 0.2 inch (5 mm) wide. Pale green in summer ripening to blue black in winter." ... "Colonize by root sprouts and spread by abundant bird- and animal-dispersed seeds."
	Ervin, G. N., Madsen, J. D., & Wersal, R. M. (2007). Invasive Species Fact Sheet: Japanese Privet (<i>Ligustrum japonicum</i> Thunb.). Mississippi State University: GeoResources Institute. https://www.gri.msstate.edu/ . [Accessed 18 Aug 2017]	"Privets grow readily from seed or from root and stump sprouts. These species escape cultivation by movement of seed, which is eaten and subsequently transported by wildlife, especially birds. Despite a reportedly low germination rate (5%-25%), the privets are highly effective dispersers and can be found in abundance in disturbed areas such as field and forest edges and urban and suburban environments."
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Seeds work well if cleaned thoroughly and stored at 32-50°F for two to three months before planting. The cold exposure (called stratification) is necessary for the embryo inside the seed to develop fully; without it, germination does not occur."

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] "Interspecific crosses within the genera <i>Ligustrum</i> and <i>Hydrangea</i> were made to introduce new genetic variation. Ploidy determinations and pollen tube staining revealed no prezygotic barriers within the gene pool used. Green and vigorous <i>Hydrangea</i> seedlings could only be obtained from crosses in which <i>H. paniculata</i> was used as seed parent. The reciprocal crosses did not yield germinating ovules. <i>H. paniculata</i> × <i>H. quercifolia</i> seedlings showed an introgression of paternal AFLP markers. In <i>Ligustrum</i> , abortion rates were very high except for crosses within the evergreen section. Germination of ovules was only achieved after fruits had developed on the seed parent for 11 weeks. 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."

Qsn #	Question	Answer
	Kameyama, Y., Kiyota, Y., Nakamura, A., Hamano, C., & Suzuki, K. (2012). Interspecific crossability and the possibility of natural hybridization between native <i>Ligustrum japonicum</i> Thunb. and exotic <i>Ligustrum lucidum</i> Ait. in Japan. <i>Japanese Journal of Conservation Ecology</i> , 17(2), 147-154	[Natural hybrids not observed in this study] "Abstract : <i>Ligustrum lucidum</i> Ait. is a fast-growing evergreen tree native to China that has been introduced to many countries, mainly for gardens, hedges, and roadside trees. Natural hybridization between exotic <i>L. lucidum</i> and native <i>L. japonicum</i> Thunb. has been a long-term concern in Japan. To reveal the interspecific crossability and the possibility of natural hybridization between these species, we observed flowering phenology, conducted experimental crosses, and ran an AFLP analysis. Peak flowering time was later for <i>L. lucidum</i> than for <i>L. japonicum</i> , and the flowering periods were separated by 2 days. A small number of fruits (seeds) was produced by the experimental crosses between <i>L. japonicum</i> and <i>L. lucidum</i> : the mean fruit set ranged from 0.02 to 0.21 depending on the collection time of pollen grains and pollination configuration. However, AFLP analysis of 365 individuals from four study sites in the Kanto region of Japan clearly demonstrated that none of these individuals was a hybrid. Thus, we conclude that natural hybridization between <i>L. japonicum</i> and <i>L. lucidum</i> does not presently occur in the Kanto region of Japan. Natural hybridization of these species might be prevented by the difference in flowering times or by negative endogenous selection on hybrid seeds or seedlings. "

604	Self-compatible or apomictic	
	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	[Unknown for <i>L. japonicum</i> . Other species are self-compatible] "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
	Dave's Garden. 2017. Japanese Privet, Waxleaf Privet - <i>Ligustrum japonicum</i> . http://davesgarden.com/guides/pf/go/51523/ . [Accessed 21 Aug 2017]	"On May 3, 2015, Stacycmc from Monroe, LA wrote: ... The smell is amazing and in spring the bees love it"
	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."

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes

Qsn #	Question	Answer
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Colonize by root sprouts and spread by abundant bird- and animal-dispersed seeds."
	Maddox, V., Byrd Jr, J., & Serviss, B. (2010). Identification and control of invasive privets (<i>Ligustrum</i> spp.) in the middle southern United States. <i>Invasive Plant Science and Management</i> , 3(4), 482-488	[Root suckers] "Once established, privets can produce sprouts from roots that are underground or near the surface, or from stumps. This is particularly true for Chinese privet, but it also has been reported in glossy and Japanese privet (Miller 2003). It can be difficult to control an established stand of privet."

607	Minimum generative time (years)	>3
	Source(s)	Notes
	Cherrylake. 2017. Wax-Leaf Ligustrum - <i>Ligustrum japonicum</i> . http://cherrylake.com/ligustrum/ . [Accessed 21 Aug 2017]	"Growth Rate: 5 years to maturity, faster growth when young, slowing with age"
	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</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)	n
	Source(s)	Notes
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Fruit and seeds. July to February. Conical-shaped, branched terminal clusters of ovoid drupes, each 0.2 to 0.5 inch (5 to 12 mm) long and 0.2 inch (5 mm) wide. Pale green in summer ripening to blue black in winter." ... "Colonize by root sprouts and spread by abundant bird- and animal dispersed seeds." [No evidence. No means of external attachment]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Nelson, G. 2010. The Trees of Florida. A Reference and Field Guide. 2nd Edition. Pineapple Press Inc, Sarasota, FL	"A popular landscape plant, especially as a barrier or border along driveways, roadsides, or suburban lot lines."
	Nesom, G. L. (2009). Taxonomic overview of <i>Ligustrum</i> (Oleaceae) naturalized in North America north of Mexico. <i>Phytologia</i> , 91(3), 467-482	"Ala., Ark., Fla., Ga., La., Miss., S.C., Tenn., Tex., Va.; native to Japan and Korea; introduced also in West Indies (Puerto Rico), Africa, Australia, Pacific Islands (Hawaii)."
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"History and use. Introduced from Japan and Korea in 1845 and 1794, respectively. Widely planted as ornamentals and escaped."

703	Propagules likely to disperse as a produce contaminant	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Seeds work well if cleaned thoroughly and stored at 32-50°F for two to three months before planting. The cold exposure (called stratification) is necessary for the embryo inside the seed to develop fully; without it, germination does not occur." [No evidence. Unlikely in Hawaiian Islands given germination requirements]

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Fruit and seeds. July to February. Conical-shaped, branched terminal clusters of ovoid drupes, each 0.2 to 0.5 inch (5 to 12 mm) long and 0.2 inch (5 mm) wide. Pale green in summer ripening to blue black in winter." ... "Colonize by root sprouts and spread by abundant bird- and animal-dispersed seeds."

705	Propagules water dispersed	n
	Source(s)	Notes
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Colonize by root sprouts and spread by abundant bird- and animal-dispersed seeds."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Dispersed by: Humans, Escapee"

706	Propagules bird dispersed	y
	Source(s)	Notes
	Nakanishi, H. (1996). Fruit Color and Fruit Size of Bird Disseminated Plants in Japan. <i>Vegetatio</i> , 123(2), 207-218	"Appendix 1. Ripe season, color and size of bird disseminated fruits in warm-temperate and cool temperate Japan" [Includes <i>Ligustrum japonicum</i>]
	Fukui, A. W. (1995). The role of the brown-eared bulbul <i>Hypsypetes amaurotis</i> as a seed dispersal agent. <i>Researches on Population Ecology</i> , 37(2), 211-218	"Appendix. Food plants of the brown-eared bulbul, together with fruit color and growth form." [Includes <i>Ligustrum japonicum</i>]
	Nesom, G. L. (2009). Taxonomic overview of <i>Ligustrum</i> (Oleaceae) naturalized in North America north of Mexico. <i>Phytologia</i> , 91(3), 467-482	"Drupes globose to oblong or slightly ellipsoid, 7–8 mm; seeds 1–2, endocarp stony, not channeled."
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Fruit and seeds. July to February. Conical-shaped, branched terminal clusters of ovoid drupes, each 0.2 to 0.5 inch (5 to 12 mm) long and 0.2 inch (5 mm) wide. Pale green in summer ripening to blue black in winter." ... "Colonize by root sprouts and spread by abundant bird- and animal-dispersed seeds."
	Gilman, E.F. & Watson, D.G. 2007. <i>Ligustrum japonicum</i> : Japanese Privet. ENH-511. Revised. Institute of Food & Agricultural Sciences, University of Florida, Gainesville FL. http://edis.ifas.ufl.edu/st352 . [Accessed 17 Aug 2017]	"The blooms are followed by abundant blue-black berries which persist most of the year. The berries are popular with birds and the dispersed seeds occasionally germinate where they fall but this is usually not a nuisance."

Qsn #	Question	Answer
707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Fruit and seeds. July to February. Conical-shaped, branched terminal clusters of ovoid drupes, each 0.2 to 0.5 inch (5 to 12 mm) long and 0.2 inch (5 mm) wide. Pale green in summer ripening to blue black in winter." ... "Colonize by root sprouts and spread by abundant bird- and animal-dispersed seeds." [No evidence. No means of external attachment]

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Karasawa, K. (1982). An Experiment on Germination of Ligustrum and Paederia Seesd collected from Bird Droppings. Japanese Journal of Ornithology, 31(2-3), 75-76	"An experiment on germination of the seeds collected from bird droppings was carried out from February 3 to March 25, 1978. The species of the seeds were Ligustrum japonicum and Paederia scandens, both of which are widely distributed and are abundant in urbanized areas in Tokyo." ... "The results of the experiment are given in Figs. 1-2. The seeds of A group, which passed through a bird's digestive tract, showed a tendency to germinate earlier and have a higher germination rate than the others (B and C groups). In the case of L. japonicum seeds, A and B groups showed 100% rate of germination, This suggests that a germination-inhibiting material included in the pericarp was removed in the course of digestion in the digestive tract of birds."
	Miller, J.H., Chambliss, E.B. & Loewenstein, N.J. (2015). A Field Guide for the Identification of Invasive Plants in Southern Forests. General Technical Report SRS-119. USDA Forest Service, Southern Research Station, Asheville, NC	"Colonize by root sprouts and spread by abundant bird- and animal-dispersed seeds"

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Densities unknown. Other Ligustrum species produce prolific fruit & seeds

Qsn #	Question	Answer
802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Baskin, C.C. & Baskin, J.M. 2014. Seeds Ecology, Biogeography, and Evolution of Dormancy and Germination. Second Edition. Academic Press, San Francisco, CA	"TABLE 10.11 Dormancy in seeds of shrubs (including bamboos) of moist warm temperature woodlands. *5type of dormancy is inferred. nur., nursery; g.h., greenhouse." [Ligustrum japonicum = ND. Non-dormant]
	Akimoto, T., Cho, S., Yoshida, H., Furuta, H., & Esashi, Y. (2004). Involvement of acetaldehyde in seed deterioration of some recalcitrant woody species through the acceleration of aerobic respiration. Plant and Cell Physiology, 45(2), 201-210	[Recalcitrant. Presumably no] "The rate of acetaldehyde (Ald) evolution in the deterioration of recalcitrant woody seeds was investigated. Four plant species, Ligustrum japonicum, Quercus serrata, Quercus myrsinaefolia and Camellia japonica, were used for the experiments." ... "Thus, the short longevity of these woody recalcitrant seeds is discussed in relation to the actions of Ald produced endogenously."

803	Well controlled by herbicides	y
	Source(s)	Notes
	Harrington, T. B., & Miller, J. H. (2005). Effects of application rate, timing, and formulation of glyphosate and triclopyr on control of Chinese privet (<i>Ligustrum sinense</i>). Weed Technology, 19(1), 47-54	"Japanese privet (<i>Ligustrum japonicum</i> Thunb.), a <i>Ligustrum</i> species having greater stature and waxier leaves than Chinese privet, was most sensitive to glyphosate when laboratory applications were made at budbreak, when absorption and transport of the herbicide was greatest (Neal et al. 1985)."
	Hield, H. (1986). PGR product comparisons for effectiveness on ivy, oleander and privet. Plant Growth Regulator Bulletin 14(4): 5-7	"With <i>L. japonicum</i> , flurprimidol (1.5%) gave a 34% reduction in shoot length and 69% reduction in weight of prunings more than a year after treatment. Even after 2 years, growth was markedly inhibited. Mefluidide checked growth for 54 days when applied at 0.12% and for 111 days at 0.24%. Chlorflurenol (0.12%) and paclobutrazol (0.3%) gave some control, but MH was not effective."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Ervin, G. N., Madsen, J. D., & Wersal, R. M. (2007). Invasive Species Fact Sheet: Japanese Privet (<i>Ligustrum japonicum</i> Thunb.). Mississippi State University: GeoResources Institute. https://www.gri.msstate.edu/ . [Accessed 17 Aug 2017]	"Privets grow readily from seed or from root and stump sprouts."
	Learn 2 Grow. 2017. <i>Ligustrum japonicum</i> 'Rotundifolium'. http://www.learn2grow.com/plants/ligustrum-japonicum-rotundifolium/ . [Accessed 17 Aug 2017]	"This adaptable shrub will grow in almost any soil type or sun exposure and withstands heavy pruning."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Grows in temperate to subtropical climates, demonstrating environmental versatility
- Able to grow in regions with subtropical climates
- Naturalized in several locations (but no evidence in Hawaiian Islands to date)
- A garden and environmental weed on the mainland US
- 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
- Seeds dispersed by birds, other frugivorous animals & intentionally by people
- Able resprout from cut stumps

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Browsed by deer & cattle (palatable despite reports of toxicity)
- Ornamental
- Seeds require cold stratification (may limit ability to spread in regions with tropical/subtropical climates)
- Reaches maturity in 5+ years
- Recalcitrant seeds (unlikely to form a persistent seed bank)
- Herbicides may provide effective control