

Taxon: *Laurus nobilis*

Family: Lauraceae

Common Name(s): bay
bay laurel
bay leaf laurel

Synonym(s): NA

Assessor: Chuck Chimera

Status: Assessor Approved

End Date: 9 May 2016

WRA Score: 6.0

Designation: EVALUATE

Rating: Evaluate

Keywords: Mediterranean Tree, Naturalized, Spice, Dioecious, 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)	Low
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)	n
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	n
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic	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	n
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems	y=1, n=0	y
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	n
604	Self-compatible or apomictic	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)		
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/m ²)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides		
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
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"After centuries of cultivation (for ornamental, religious and pharmacological purposes), the original natural range of <i>L. nobilis</i> is no more easily recognisable. According to the most restrictive theory, <i>L. nobilis</i> originates from Asia Minor and Middle East regions and only its presence in Mediterranean communities of Anatolia, Syria and Lebanon would be unquestionably natural. According to another hypothesis, also the southern Iberian Peninsula and other regions, where (at least in localized sites) a warm-temperate but humid climate occurs, should be included in the natural range of <i>L. nobilis</i> . Nowadays, <i>L. nobilis</i> occurs largely along the Mediterranean basin, in natural or naturalized conditions in the environment of evergreen Mediterranean species or also associated to submediterranean deciduous, termophilous <i>Quercus</i> forests (Angiolini et al., 1995; De Capua E.L., 1995)."
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2016. 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
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"After centuries of cultivation (for ornamental, religious and pharmacological purposes), the original natural range of <i>L. nobilis</i> is no more easily recognisable. According to the most restrictive theory, <i>L. nobilis</i> originates from Asia Minor and Middle East regions and only its presence in Mediterranean communities of Anatolia, Syria and Lebanon would be unquestionably natural. According to another hypothesis, also the southern Iberian Peninsula and other regions, where (at least in localized sites) a warm-temperate but humid climate occurs, should be included in the natural range of <i>L. nobilis</i> . Nowadays, <i>L. nobilis</i> occurs largely along the Mediterranean basin, in natural or naturalized conditions in the environment of evergreen Mediterranean species or also associated to submediterranean deciduous, termophilous <i>Quercus</i> forests " [More suited to a Mediterranean climate]
202	Quality of climate match data	Low

Qsn #	Question	Answer
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"After centuries of cultivation (for ornamental, religious and pharmacological purposes), the original natural range of <i>L. nobilis</i> is no more easily recognisable.

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Climatic amplitude (estimates) - Altitude range: 0 - 400 m - Mean annual rainfall: 500 - 1000 mm - Rainfall regime: winter; bimodal; uniform - Dry season duration: 1 - 2 months - Mean annual temperature: 12 - 19°C - Mean maximum temperature of hottest month: 24 - 30°C - Mean minimum temperature of coldest month: 2 - 8°C - Absolute minimum temperature: > -15°C"
	Elzebroek, A. T. G. 2008. Guide to Cultivated Plants. CABI, Wallingford, UK	"Ideally, day temperatures should be between 10 and 27 °C. and night temperatures not below 10°C. It can withstand several degrees of frost. Severe frost may kill the above-ground parts. although regeneration from subterranean parts of the plant may be possible."
	Ipor, I.B. & Oyen, L.P.A., 1999. <i>Laurus nobilis</i> L.[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. www.proseanet.org	"Laurel, which occurs naturally in Mediterranean maquis and forest vegetation, is very adaptable, growing well at average annual temperatures from 8-27°C and with an annual precipitation of 300-2200 mm. Light frost is tolerated. More severe frost may kill the aboveground parts, but plants may regrow from their basal parts. Its light requirements are high. A decrease in temperature may reduce leaf size and oil content of the leaves. Leaves from trees grown at or near sea-level are reported to contain more oil than those from trees grown on inland hills."
	The Herb Society of America. 1999. Factsheet - Bay - <i>Laurus nobilis</i> . http://www.herbsociety.org/factsheets/bay.pdf . [Accessed 25 Oct 2011]	"Sweet bay, or bay laurel is an evergreen tree which may grow to 40 feet in its native Mediterranean regions, though in Zones 8-10 in the U.S., it can grow from 6 to 25 feet if protected from winter winds."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Ipor, I.B. & Oyen, L.P.A., 1999. <i>Laurus nobilis</i> L.[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. www.proseanet.org	" <i>Laurus nobilis</i> is grown and occasionally naturalized throughout the drier tropics, subtropics and warm temperate areas."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes

Qsn #	Question	Answer
	Ipor, I.B. & Oyen, L.P.A., 1999. <i>Laurus nobilis</i> L. [Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. www.proseanet.org	" <i>Laurus nobilis</i> is grown and occasionally naturalized throughout the drier tropics, subtropics and warm temperate areas. It is also cultivated as a garden and pot plant worldwide."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Ipor, I.B. & Oyen, L.P.A., 1999. <i>Laurus nobilis</i> L. [Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. www.proseanet.org	" <i>L. nobilis</i> is grown and occasionally naturalized throughout the drier tropics, subtropics and warm temperate areas."
	Howell, C. J., & Sawyer, J. W. (2006). New Zealand naturalised vascular plant checklist. New Zealand Plant Conservation Network, Wellington, NZ	" <i>Laurus nobilis</i> ...Fully naturalised" [New Zealand]
	Flora of Australia Online. 2011. <i>Laurus nobilis</i> . http://www.anbg.gov.au/abrs/online-resources/flora/stddisplay.xsql?pnid=40512 . [Accessed 25 Oct 2011]	"Since publication of the Flora of Australia the Australian Plant Census records this species as naturalised for Australia."
	Delucchi, G., Farina, E., & Torres Robles, S. (2007). <i>Laurus nobilis</i> (Lauraceae) especie naturalizada en la República Argentina. Boletín de la Sociedad Argentina de Botánica, 42(3-4), 309-312	"Summary: <i>Laurus nobilis</i> (Lauraceae), a naturalized species in Argentina. In this paper <i>Laurus nobilis</i> L. (Lauraceae) is reported for the first time naturalized in the provinces of Buenos Aires and La Pampa (Argentina). A description and illustration of this species are given."

302	Garden/amenity/disturbance weed	y
	Source(s)	Notes
	Howell, C. (2008). Consolidated list of environmental weeds in New Zealand. DOC Research & Development Series 292. Science & Technical Publishing Department of Conservation, Wellington, New Zealand	" <i>Laurus nobilis</i> - Widely cultivated, spreads by seed and suckers. Controlled in Raukapuka and Nelson Lakes Areas." [A weed of minor significance, not demonstrating enough impacts to be considered an environmental weed]

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

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

Qsn #	Question	Answer
305	Congeneric weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Naturalized] "Laurus umbellata Thunb. Lauraceae = Rraphiolepis umbellata (Thunb.) Makino 1049-N"

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[No evidence] "L. nobilis is an evergreen polycormic tree or large shrub with straight stools and densely foliate, reaching up to 10-15 m high. The leaves are strongly aromatic, moderately sclerophyllous and narrowly elliptic, 5-10 cm long and 2-3 cm wide. L. nobilis has leaves far larger than those of all the other evergreen Mediterranean species. Flowers appear in the autumn and are small, greenish and not attractive. The fruit is a black berry."

402	Allelopathic	n
	Source(s)	Notes
	Fujii, Y., Parvez, S. S., Parvez, M., Ohmae, Y., & Iida, O. 2003. Screening of 239 medicinal plant species for allelopathic activity using the sandwich method. Weed Biology and Management, 3(4): 233-241	"Leaf litter of 239 medicinal plant species were collected from the Izu Experimental Station for Medicinal Plants, National Institute of Health Sciences, Shizuoka, Japan, and these were subjected to analysis of their allelopathic effects using the sandwich method, as shown in Figure 1. We used lettuce (Lactuca sativa L. Great Lakes 366, Takii Seed Co. Ltd, Japan) as a test plant material in the bioassay because of its reliability for germination...When using 10 mg leaf litter in the sandwich method, we found that out of the 239 species tested, 223 and 17 species caused inhibitory and promotive responses to lettuce radicle growth, respectively (Table 1)." [L. nobilis showed a promotive response, although it was not statistically significant]
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	No evidence

403	Parasitic	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"L. nobilis is an evergreen polycormic tree or large shrub with straight stools and densely foliate, reaching up to 10-15 m high." [No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes

Qsn #	Question	Answer
	Gonzalez-Hernandez, M. P., & Silva-Pando, F. J. (1999). Nutritional attributes of understory plants known as components of deer diets. <i>Journal of Range Management</i> , 52(2): 132-138	"Nutritive quality of vegetation is important when evaluating the habitat to sustain wildlife. Crude protein, fiber content and in vitro digestibility were evaluated for 17 shrubs, 7 trees, 2 ferns, 3 forbs, and 4 grasses species of Galician (NW Spain) woodlands understory. Nutritional attributes showed forbs, <i>Frangula alnus</i> Miller, <i>Hedera helix</i> L. and <i>Lonicera periclymenum</i> L. as plants with the highest forage value. Crude protein levels of <i>Rubus</i> sp., <i>Robinia pseudacacia</i> L., <i>Castanea sativa</i> Miller, and grasses could meet deer nitrogen requirements but their low IVOMD and high fiber percentages make them mid-low feed value forages. Understory layer of oakwoods provides higher quality forage than conifer or eucalyptus stands. Crude protein and digestibility of plants peaked in spring-summer and the highest fiber content occurred in winter. Seasonal fluctuations in forage quality makes seasonal management and seasonal plans necessary" [<i>L. nobilis</i> included among palatable species studied]
	Bermúdez, X. Á., & González, F. A. (2015) Conservation and restoration of the riparian forest. Impacts of invasive alien species. The University of Vigo, Pontevedra, Spain	"The leaves are used as food and its branches as livestock feed."
	Dolev, A., Bar-Davis, S., Dayan, T. & Saltz, D. (2001). Can reintroduced Persian fallow deer be used for woodland management? <i>Israel Journal of Zoology</i> 47: 181	"Three years of data indicate that there is an opening of the forest inside the enclosure where pasturing pressure is on average 1.2 fallow deer/ha. Browsing impacts indicated a preference for <i>Laurus nobilis</i> , <i>Phillyrea latifolia</i> , and <i>Rhamnus punctatus</i> and avoidance of <i>Quercus calliprinos</i> ."

405	Toxic to animals	n
	Source(s)	Notes
	Dolev, A., Bar-Davis, S., Dayan, T. & Saltz, D. (2001). Can reintroduced Persian fallow deer be used for woodland management? <i>Israel Journal of Zoology</i> 47: 181	"Three years of data indicate that there is an opening of the forest inside the enclosure where pasturing pressure is on average 1.2 fallow deer/ha. Browsing impacts indicated a preference for <i>Laurus nobilis</i> , <i>Phillyrea latifolia</i> , and <i>Rhamnus punctatus</i> and avoidance of <i>Quercus calliprinos</i> ." [No evidence of toxicity to deer]
	PATSP. 2009. Houseplant Toxicity Week: Part 6 (Safe Plants). http://plantsarethe strangestpeople.blogspot.com/2009/04/houseplant-toxicity-week-part-6-safe.html . [Accessed 26 Oct 2011]	[Toxic to animals? Probably Not] " <i>Laurus nobilis</i> (bay leaf, laurel) Edible, though there have been some weird stories.2 Toxicity to pets is unclear, but I think it's probably safe."

406	Host for recognized pests and pathogens	
	Source(s)	Notes

Qsn #	Question	Answer
	Ipor, I.B. & Oyen, L.P.A., 1999. <i>Laurus nobilis</i> L.[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. www.proseanet.org	"Diseases and pests There is little information on the economic damage in laurel caused by diseases and pests. Diseases are far more important than pests and are often widespread. The two most damaging diseases of laurel are root rot caused by <i>Phytophthora</i> spp. and leaf-spot by <i>Colletotrichum</i> spp. <i>Phytophthora cinnamomi</i> causes yellowing and wilting of leaves and dieback of twigs. Severe attack may be fatal in both young and mature plants. Affected plants should be uprooted, burnt and replaced by healthy stock. <i>Colletotrichum nobile</i> causes brown spots to develop on the leaves and become progressively larger. A general but low level of infection is common. Though it results in little damage to the leaves, it affects leaf oil content more severely. Routine spraying is necessary in severely affected areas, but care must be taken to avoid fungicide residues on harvested leaves. In Italy, scale insects and psyllids cause some damage."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Many pests (such as <i>Oidium lauraceum</i>) are particularly harmful; and they negatively effect both oil production and attractiveness of the foliage. For the most recent papers on pests damages see: Graniti and Braun (1998); Heugens (1996); Landi, (1997) and Malumphy (1997)."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes
	IUCN Centre for Mediterranean Cooperation. 2005. A Guide to Medicinal Plants in North Africa. IUCN, Malaga, Spain	[Causes allergies or is otherwise toxic to humans? Potentially] "The sesquiterpenic lactones of the laurel leaves provoke allergic reactions and dermatitis. The leaves have digestive properties (for epigastric bloating, slow digestion, eructation, flatulence). They are not poisonous. The leaves are a greatly appreciated spice for cooking."
	Frohne, D. & Pfander, H.J. (2005). Poisonous Plants: A Handbook for Doctors, Pharmacists, Toxicologists, Biologists and Veterinarians. Manson Publishing Ltd, London, UK	[Potentially] "The only representative in the European-Mediterranean region is <i>Laurus nobilis</i> (sweet bay), whose fruits and leaves, because of their content of essential oil, are used as a spice...Laurel oil, which was once used for impregnating hat bands, is known as the cause of contact allergies [1, 2]. Recently, as a sign that 'tried' natural remedies have been resurrected, severe contact allergies from laurel oil have once again occurred [3, 4]." [Possible allergens in plant oils]

408	Creates a fire hazard in natural ecosystems	y
	Source(s)	Notes
	Dimitrakopoulos, A. P., & Papaioannou, K. K. (2001). Flammability assessment of Mediterranean forest fuels. <i>Fire Technology</i> , 37(2), 143-152	"Group IV: The extremely flammable species <i>Laurus nobilis</i> (laurel) and <i>Eucalyptus camaldulensis</i> (gum tree, eucalypt) belong to this group. These species are extremely rich in flammable volatile essential oils...fact that the most flammable species (<i>Laurus nobilis</i> and <i>Eucalyptus camaldulensis</i>) contain excessive amounts of essential oils, which are volatile at the early stages of pyrolysis"

Qsn #	Question	Answer
	LeHouerou, H. N. (1974). Fire and vegetation in the Mediterranean Basin. In Proceedings 13th Tall Timbers Fire Ecology Conference, pp. 237-277	"The Mediterranean vegetation is very sensitive to fire owing to the nature of the climate. Man burned the forest for several thousands of years in search for better pastures and cropland. At present, fire destroys about 200,000 ha yearly of forest and shrubland in the Mediterranean, causing a \$50 million annual loss. This is why the Mediterranean vegetation is dominated by pyrophytes; we, therefore, do not know what really is the 'climax' vegetation. Some species which are extremely susceptible to fire (for instance <i>Laurus nobilis</i> which burns like gasoline) are now very rare and may even have totally disappeared. What was their role in the Mediterranean vegetation prior to man's interference?"

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"... it prefers relatively moist sites, sheltered from the sun and the wind such as the bottom of ravines."
	Boething Treeland Farms. (2016). <i>Laurus nobilis</i> . http://www.boethingtreeland.com/special-features/shade-tolerant/laurus-nobilis.html . [Accessed 9 May 2016]	"Shade Tolerant"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Ipor, I.B. & Oyen, L.P.A., 1999. <i>Laurus nobilis</i> L.[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. www.proseanet.org	"Although well-drained, deep and fertile soils are preferred, growth is satisfactory on a wide range of soils with a pH of 4.5-8.3."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"It does not require particular soil types, but deep rich soils are always preferred. "

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	" <i>L. nobilis</i> is an evergreen polycormic tree or large shrub with straight stools and densely foliate, reaching up to 10-15 m high."

412	Forms dense thickets	
	Source(s)	Notes
	Dolev, A., Saltz, D., Bar-David, S., & Yom-Tov, Y. (2002). Impact of repeated releases on space-use patterns of Persian fallow deer. <i>The Journal of Wildlife Management</i> , 66(3): 737-746	"The north-facing slope is steeper and is covered by dense woodland of common oak and <i>Laurus nobilis</i> trees, with almost no open areas." [Possibly. Forms dense thicket with oak trees]

501	Aquatic	n
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Qsn #	Question	Answer
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[Terrestrial] "L. nobilis is an evergreen polycormic tree or large shrub with straight stools and densely foliate, reaching up to 10 15 m high."

502	Grass	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"L. nobilis is an evergreen polycormic tree or large shrub with straight stools and densely foliate, reaching up to 10 15 m high." [Lauraceae]

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	Lauraceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"L. nobilis is an evergreen polycormic tree or large shrub with straight stools and densely foliate, reaching up to 10-15 m high."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	No evidence

602	Produces viable seed	y
	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	"Because it is dioecious, fertile seed can be obtained only if plants of both sexes are available; they are easily germinated if formed."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Seed propagation is usual and easy; fruits are collected in early winter when they are fully mature and then immediately sown entire (unpeeled); seedlings grow fast and can be transplanted (preferably in a container) when they are 2-3 months old. It can be propagated also by cuttings. Cultivation in container is generally preferred (Mori et al., 1995; Piccioni et al., 1996). "

Qsn #	Question	Answer
603	Hybridizes naturally	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	No evidence [Plant with long history of cultivation, and no mention of natural hybridization]

604	Self-compatible or apomictic	n
	Source(s)	Notes
	Elzebroek, A. T. G. 2008. Guide to Cultivated Plants. CABI, Wallingford, UK	"Bay laurel is usually dioecious, so male and female flowers are found on different plants."
	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	"Because it is dioecious, fertile seed can be obtained only if plants of both sexes are available; they are easily germinated if formed."
	Rottenberg, A. (1998). Sex ratio and gender stability in the dioecious plants of Israel. Botanical Journal of the Linnean Society, 128(2), 137-148	"Significantly male biased populations were found in two out of the three populations tested of <i>Laurus nobilis</i> , and in two out of the four populations tested of <i>Pistacia htiscus</i> ."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Flamini, G., Cioni, P. L., & Morelli, I. (2002). Differences in the fragrances of pollen and different floral parts of male and female flowers of <i>Laurus nobilis</i> . Journal of Agricultural and Food Chemistry, 50(16), 4647-4652	"In the present paper we have analyzed the profiles of the volatiles obtained from male and female whole flowers, pollen, and staminoids of <i>Laurus nobilis</i> L. (bay, sweet bay), the sole species of the Lauraceae family growing in Italy (11). This is a dioecious plant, with scented flowers: the male flowers having 8-12 stamens, and the female flowers having four staminoids...The pollination is entomophilous, with honey bees as main pollinators; because of the early blooming, bees employ its pollen and nectar mainly as food."
	Pacini, E., Sciannandrone, N., & Nepi, M. (2014). Floral biology of the dioecious species <i>Laurus nobilis</i> L. (Lauraceae). Flora Morphology, Distribution, Functional Ecology of Plants, 209(3), 153-163	"Male and female flowers of <i>L. nobilis</i> were visited by different orders of insects (Table 3), which collected pollen and nectar. Hymenopterans (<i>Apis mellifera</i> , <i>Bombus lucorum</i> , <i>Xylocopa violacea</i>) accounted for almost 50% of the visits observed. Other insects were the lepidopteran <i>Gonepteryx rhamni</i> , 25% of visits, the coleopterans <i>Meligethes</i> sp. and <i>Oxythyrea funesta</i> with 20%, and sporadic visits by the dipteran <i>Musca domestica</i> and aphids (Table 3). The duration of visits was not timed, but hymenopterans stayed longer on male flowers. The number of visits to male and female flowers was similar."

Qsn #	Question	Answer
606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	Howell, C. (2008). Consolidated list of environmental weeds in New Zealand. DOC Research & Development Series 292. Science & Technical Publishing Department of Conservation, Wellington, New Zealand	" <i>Laurus nobilis</i> - Widely cultivated, spreads by seed and suckers. Controlled in Raukapuka and Nelson Lakes Areas." [Spreads vegetatively]
	UC IPM. 2014. Grecian laurel, Sweetbay— <i>Laurus nobilis</i> . Agriculture and Natural Resources, UC Davis, CA. http://www.ipm.ucdavis.edu/PMG/GARDEN/PLANTS/grecian.html . [Accessed 9 May 2016]	"Plants tend to form suckers."

607	Minimum generative time (years)	
	Source(s)	Notes
	The Gardener's Pantry. 2008. <i>Laurus nobilis</i> "the true bay". http://nicholsgardennursery.wordpress.com/2008/06/20/laurus-nobilis-the-true-bay/ . [Accessed 9 May 2016]	[Uncertain, Probably 3+] "Bay plants started from seed will take several years to flower."
	Roth, S.A. 2001 Taylor's Guide to Trees: The Definitive, Easy-to-Use Guide to 200 of the Garden's Most Important Plants. Houghton Mifflin Harcourt, New York, NY	[Uncertain. Probably 3+] "Moderate growth rate to 20 to 50 feet."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Herrera, C. M. (1987). Vertebrate-dispersed plants of the Iberian Peninsula: a study of fruit characteristics. <i>Ecological Monographs</i> , 57(4): 305-331	"TABLE A1. Growth form, distributional status in the Iberian Peninsula, and fruit characteristics, of the 111 vertebrate-dispersed plant species examined in this study " [<i>L. nobilis</i> Fruit Length (mm) = 14.8; Fruit Width (mm) = 12.2. Relatively large, one-seeded fruits with no means of external attachment]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	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	"In Hawaii, bay laurel is grown infrequently, and almost exclusively as a spice or flavoring material."
	CAB International, 2005. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	"Laurel leaves are still harvested for distillation of essential oils in Turkey, Georgia (Acar, 1991; Ebanoizde, 1996, Gabunya and Ebanoizde, 1998) and Pakistan (Riaz et al., 1989). Essential oil composition is discussed by Fiorini et al. (1997), Riaz et al. (1989) and comprehensively by Weiss (1997). Elsewhere, <i>L. nobilis</i> is largely cultivated for shelterbelts and windbreaks (Massa and Mantia, 1997);"

Qsn #	Question	Answer
703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"The fruit is a black berry." [No evidence, and unlikely given relatively large fruit size]
704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"The fruit is a black berry." [Fleshy-fruited]
705	Propagules water dispersed	n
	Source(s)	Notes
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"The fruit is a black berry." [No evidence]
706	Propagules bird dispersed	y
	Source(s)	Notes
	Hampe, A. (2003). Frugivory in European Laurel: how extinct seed dispersers have been substituted. <i>Bird Study</i> , 50(3), 280-284	"Despite a diverse frugivore community being present, Laurel fruits are almost exclusively (99%) consumed by Blackbird and rarely (1%) by Blackcap <i>Sylvia atricapilla</i> . Blackbirds concentrate at fruiting trees and individuals may remain there for several days. Birds usually forage in small groups and return at intervals of 12–14 minutes...As most members of the Lauraceae, it produces relatively large, heavy seeded and lipid-rich drupes and relies on medium- or large-sized frugivorous birds for seed dispersal."
	Debussche, M., & Isenmann, P. (1994). Bird-dispersed seed rain and seedling establishment in patchy Mediterranean vegetation. <i>Oikos</i> , 69(3): 414-426	"Plant species present at the study site or dispersed at the study site, family, bird disperser among the three main ones, number of seeds per fruit, number of seeds collected during the 17-month study period, number of seedlings censused in 1983. (Nomenclature follows Tutin et al. 1964-1980)." [Includes <i>L. nobilis</i>]
	Herrera, C. M. (1987). Vertebrate-dispersed plants of the Iberian Peninsula: a study of fruit characteristics. <i>Ecological Monographs</i> , 57(4): 305-331	"TABLE AI. Growth form, distributional status in the Iberian Peninsula, and fruit characteristics, of the 111 vertebrate- dispersed plant species examined in this study." [Table includes <i>L. nobilis</i>]
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"The fruit is a black berry."

Qsn #	Question	Answer
707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Hampe, A. (2003). Frugivory in European Laurel: how extinct seed dispersers have been substituted. <i>Bird Study</i> , 50(3), 280-284	"Despite a diverse frugivore community being present, Laurel fruits are almost exclusively (99%) consumed by Blackbird and rarely (1%) by Blackcap <i>Sylvia atricapilla</i> . Blackbirds concentrate at fruiting trees and individuals may remain there for several days. Birds usually forage in small groups and return at intervals of 12–14 minutes...As most members of the Lauraceae, it produces relatively large, heavy seeded and lipid-rich drupes and relies on medium- or large-sized frugivorous birds for seed dispersal." [No means of external attachment]
708	Propagules survive passage through the gut	y
	Source(s)	Notes
	CAB International, 2005. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	"The fruit is a black berry." [Presumably]
801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Hampe, A. (2003). Frugivory in European Laurel: how extinct seed dispersers have been substituted. <i>Bird Study</i> , 50(3), 280-284	[Possibly Yes] "Female trees can produce a few thousand fruits (size 14.8 × 12.2 mm, weight 1234 mg, seed weight 698 mg; Herrera 1987). These ripen from mid-September until early November and may remain on the tree ripe for approximately four weeks (A. Hampe unpubl. data)."
802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	The Herb Society of America. 1999. Factsheet - Bay - <i>Laurus nobilis</i> . http://www.herbsociety.org/factsheets/bay.pdf . [Accessed 9 May 2016]	"In warm climates where seed is produced, seed may take six months to a year to germinate."
	Konstantinidou, E., Takos, I., & Merou, T. (2008). Desiccation and storage behavior of bay laurel (<i>Laurus nobilis</i> L.) seeds. <i>European Journal of Forest Research</i> , 127(2), 125-131	"The fact that bay laurel seeds cannot retain their germinability at lower moisture contents demonstrates that it is a species with recalcitrant seeds." ... " <i>Laurus nobilis</i> seeds do not maintain high viability in storage, like the rest of the recalcitrant seeds. However, stored at 0 ± 1°C in moist conditions, without previous seed drying, they can maintain a satisfying germination percentage for 4–8 months."
	Ipor, I.B. & Oyen, L.P.A., 1999. <i>Laurus nobilis</i> L. [Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. www.proseanet.org	"The seeds are soaked in warm water for 12-24 hours before sowing. Only fresh seed should be used, as viability is lost rapidly."
803	Well controlled by herbicides	

Qsn #	Question	Answer
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species was found

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	UC IPM. 2014. Grecian laurel, Sweetbay— <i>Laurus nobilis</i> . Agriculture and Natural Resources, UC Davis, CA. http://www.ipm.ucdavis.edu/PMG/GARDEN/PLANTS/grecian.html . [Accessed 9 May 2016]	"Grecian laurel tolerates heavy pruning and shaping into hedges or topiary shapes such as globes and cones."
	Coca, M., & Pausas, J. G. (2012). Scale-dependent segregation of seeders and resprouters in cork oak (<i>Quercus suber</i>) forests. <i>Oecologia</i> , 168(2), 503-510	"Table 1 Species post-fire regeneration traits considered" [<i>Laurus nobilis</i> listed as having both resprouting ability, and post-fire seeding]
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Vigorous resprouting can repair occasional frost damages...it can be trimmed frequently; after cutting, a laurel hedgerow can regenerate by producing numerous and fast growing sprouts."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Broad climate suitability
- Able to grow in tropical & subtropical climates
- Naturalized (although native range not known)
- Controlled as a weed in New Zealand
- Highly flammable foliage may increase fire risk
- Shade-tolerant
- Tolerates many soil types
- Reproduces by seeds & root suckers
- Seeds dispersed by birds & intentionally by people
- Able to resprout after cutting, heavy pruning or fire

Low Risk Traits

- No reports of naturalization in the Hawaiian Islands to date
- Unarmed (no spines, thorns or burrs)
- Provides fodder for livestock
- Ornamental & culinary uses
- Dioecious
- Recalcitrant seeds rapidly lose viability

Second Screening Results for Tree/tree-like shrubs

(A) Shade tolerant or known to form dense stands?> Yes. Shade tolerant

(B) Bird-dispersed?> Dispersed by birds

(C) Life-cycle <4 years? Probably 3-4+ years.

Outcome = Evaluate