

Family: *Solanaceae*

Taxon: *Brunfelsia australis*

Synonym: *Common Name* Yesterday-Today-And-Tomorrow

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: L
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score -3
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		y=1, n=0	n
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	n
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed		n=0, y = 1*multiplier (see Appendix 2)	
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	
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	
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0	n
411	Climbing or smothering growth habit		y=1, n=0	n

412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	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	
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	
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	
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)	y=-1, n=1	

Designation: L

WRA Score -3

Supporting Data:

101	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Widely cultivated [but no evidence that cultivation has strongly modified the specie]
201	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	This species is native to southern Brazil, Paraguay, and Argentina and widely cultivated for its showy flowers that age from purple to white.
202	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	This species is native to southern Brazil, Paraguay, and Argentina and widely cultivated for its showy flowers that age from purple to white.
203	1998. Riffle, R. L.. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	The shrub is hardy in zones 10 and 11 and will come back from the roots in zone 9b.
203	2005. Floridata. Brunfelsia pauciflora. Floridata.com, Tallahassee, Florida http://www.floridata.com/ref/b/brun_pau.cfm	Paraguay jasmine (<i>Brunfelsia australis</i>) is also called yesterday-today-and-tomorrow. It is a somewhat larger, growing to 12 ft (3.7 m), and more densely branched, twiggy shrub, more cold-hardy (to zone 9). It has smaller, fragrant flowers in clusters of 1 to 3. This more robust and faster growing <i>Brunfelsia</i> also comes from South America. The flowers are not quite as showy as <i>B. pauciflora</i> , but it recovers from frost better, and some gardeners have been growing it in zone 8B
204	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	This species is native to southern Brazil, Paraguay, and Argentina and widely cultivated for its showy flowers that age from purple to white.
205	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	widely cultivated for its showy flowers [Hawaiian Islands]
205	2005. Wagner, W. L./Herbst, D. R./Lorence, D. H.. Flora of the Marquesas Islands website. Smithsonian Institution, http://botany.si.edu/pacificislandbiodiversity/marquesasflora/index.htm	Cultivated in the Marquesas
205	2010. Dave's Garden. PlantFiles: Yesterday, Today and Tomorrow, Morning-Noon-and-Night, Paraguay Jasmine, Eternity Plant. Dave's Garden, http://davesgarden.com/guides/pf/go/2107/	Grown in California, Texas, Florida, Louisiana
205	2010. Discover Nature at JCU. Plants on Townsville Campus: <i>Brunfelsia australis</i> . James Cook University, http://cms.jcu.edu.au/discovernature/planttownsville/JCUDEV_015065	<i>Brunfelsia australis</i> grown on Townsville Campus of James Cook University, Australia.
301	2007. Randall, R.P.. Global Compendium of Weeds. http://www.hear.org/gcw/	No evidence of naturalization
302	2007. Randall, R.P.. Global Compendium of Weeds. http://www.hear.org/gcw/	No evidence
303	2005. Wagner, W. L./Herbst, D. R./Lorence, D. H.. Flora of the Marquesas Islands website. Smithsonian Institution, http://botany.si.edu/pacificislandbiodiversity/marquesasflora/index.htm	No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds. http://www.hear.org/gcw/	No evidence
305	2007. Randall, R.P.. Global Compendium of Weeds. http://www.hear.org/gcw/	<i>Brunfelsia americana</i> listed as a weed, but no information on impacts or control found. <i>Brunfelsia calycina</i> listed as a weed, but no information on impacts or control found. <i>Brunfelsia grandiflora</i> listed as naturalized. <i>Brunfelsia nitida</i> listed as a weed, but no information on impacts or control found. <i>Brunfelsia pauciflora</i> listed as a weed, but no information on impacts or control found.

401	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Spineless shrubs or treelets
402	1998. Riffle, R. L.. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	No evidence
402	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	No evidence
403	1998. Riffle, R. L.. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	No evidence
403	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	No evidence
404	1990. Spainhour, Jr., C. B./Fiske, R. A./Flory, W./Reagor, J. C.. A toxicological investigation of the garden shrub <i>Brunfelsia calycina</i> var. <i>floribunda</i> (yesterday-today-and-tomorrow) in three species. <i>Journal of Veterinary Diagnostic Investigation</i> . 2: 3-8	Our studies show that <i>Brunfelsia</i> spp. plant material is toxic to mice, rats, and the canine. The fatal intoxication of cattle has been reported but not documented.
404	2006. Seavers, A.. Pretty Poisons in the Back Yard. Petalia, http://www.petalia.com.au/Templates/StoryTemplate_Process.cfm?specie=Dogs&story_no=2140	The principle toxin is Brunfelsamidine, a neurotoxin that causes seizures. The toxin is contained in all parts of the plants but the leaves and flower heads appearing particularly palatable and often eaten in vast quantities. The plant is also often called the 'Chills' plant because of its hallucogenic effect in humans who exhibit shivering and shaking as if extremely cold and chilled.
404	2008. Khan, S. A.. Toxicology Brief: <i>Brunfelsia</i> species: Beautiful but deadly. <i>Veterinary Medicine</i> . http://veterinarymedicine.dvm360.com/vetmed/article/articleDetail.jsp?id=503045&sk=&date=&pageID=2	There are case reports of <i>Brunfelsia</i> species toxicosis in cattle, dogs, rats, and mice. 1 3,5-7 Several of these cases were fatal, with nonspecific necropsy findings. Although only a few <i>Brunfelsia</i> species (<i>B. calycina</i> var. <i>floribunda</i> , <i>B. pauciflora</i> , <i>B. australis</i> , <i>B. bonodora</i>) have been implicated in animal poisoning cases, all species and all parts of the plant (flowers, leaves, berries, and seeds) should be considered toxic to animals. [apparently cattle will consume it]
405	1983. Neilson, J./Burren, V.. Intoxication of two dogs by fruit of <i>Brunfelsia australis</i> . <i>Australian Veterinary Journal</i> . 60: 379-380.	The common garden shrub, <i>Brunfelsia australis</i> , previously known as <i>B. bonodora</i> , or <i>Francissia</i> grows about 2 m with flowers which are bright blue when they first open, changing to almost white as they mature. The fruit is borne in summer, changing from green to brown or almost black. Two Dalmatian dogs were presented for examination at our premises, showing signs of buccal irritation, brick red mucous membranes, excessive salivation and pawing at the mouth. The dogs were observed to eat the fruit from the prunings of a <i>Francissia</i> shrub. One dog had vomited. Apomorphine hydrochloride was used to induce vomiting in both dogs. The dog that had previously vomited, produced only a few fruit, whereas the other dog vomited dozens of fruit. Both dogs appeared excited and agitated.
405	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Most species contain toxic alkaloids and some have been used as medicines or hallucinogens in South America
405	2007. Thomson, N.. Poisonous Plants in Australia: Enabling consumers to buy safe plants. WWF-Australia Issues Paper. WWF-Australia, Sydney wwf.org.au	Table 6. Toxicity: Pc (pets, stock)...PC: the plant is poisonous and especially toxic to children. The principal concern of this report is the toxicity of plants to humans but toxicity to animals, stock etc in indicated in the body of the Tables as (pets, stock).
406	2010. WRA Specialist. Personal Communication.	Pests and pathogens unknown
407	2002. Plant of the Week 06/03/2002: <i>Brunfelsia australis</i> Bentham. www.killerplants.com , http://www.killerplants.com/plant-of-the-week/20020603.asp	Internal poisoning by <i>Brunfelsia</i> is said to cause the tactile sensation, urtication, a pain similar to having stuck one's body into nettle, as well as the inability to walk, frothing at the mouth, abdominal cramps, nausea, weak vomiting, and vertigo.
407	2005. Floridata. <i>Brunfelsia pauciflora</i> . Floridata.com, Tallahassee, Florida http://www.floridata.com/ref/b/brun_pau.cfm	Yesterday-today-and-tomorrow is known to contain poisonous alkaloids. The berries are especially toxic.

407	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Most species contain toxic alkaloids and some have been used as medicines or hallucinogens in South America
407	2007. Thomson, N.. Poisonous Plants in Australia: Enabling consumers to buy safe plants.. WWF-Australia Issues Paper.. WF-Australia, Sydney wwf.org.au	Table 6. Toxicity: Pc (pets, stock)...PC: the plant is poisonous and especially toxic to children. The principal concern of this report is the toxicity of plants to humans but toxicity to animals, stock etc is indicated in the body of the Tables as (pets, stock).
408	1997. A rapid assessment of the humid forests of South Central Chuquisaca, Bolivia.. RAPWorking Papers. 8: .Conservation International,	A very common shrub throughout this area was cf. <i>Brunfelsia australis</i> (Solanaceae), accounting for up to 1/3 of the individual shrubs [unlikely, in wetter habitat].
409	2005. Gardens Florida. Fragrant Plants for the Shade - <i>Brunfelsia australis</i> . Gardens Florida, http://www.gardensflorida.com/weekly/shade.html	Amount of shade it likes: Sun to light shade
409	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	A shade-loving species, it prefers cool, moist areas with rich, well-drained, well-watered soil.
409	2010. Gardino Nursery. Rare and Unusual Plants - <i>Brunfelsia australis</i> . Gardino Nursery, http://www.gardinonursery.com/product_info.php?cPath=3&products_id=87	This shrub will do well in any location between full sun to filtered light. Avoid too much shade.
410	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	prefers cool, moist areas with rich, well-drained, well-watered soil. Sandy or nutrient-poor soils may lead to yellowing of the foliage (chlorosis), which can be corrected with a fertilizer that includes minor elements applied as a foliar spray or soil drench.
411	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Shrubs to ca. 12 feet tall, glabrous.
412	1998. Plowman, T.. A revision of the South American species of <i>Brunfelsia</i> (Solanaceae). Fieldiana. Botany. 39: 1-135.	No evidence from native range
501	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Terrestrial
502	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Solanaceae
503	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Solanaceae
504	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Shrubs to ca. 12 feet tall, glabrous.
601	1998. Plowman, T.. A revision of the South American species of <i>Brunfelsia</i> (Solanaceae). Fieldiana. Botany. 39: 1-135.	No evidence from native range
602	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Propagation is from seed or cuttings.
603	1998. Plowman, T.. A revision of the South American species of <i>Brunfelsia</i> (Solanaceae). Fieldiana. Botany. 39: 1-135.	The failure of interspecific crosses suggests that all the species investigated are reproductively isolated. In one case this may be significant in view of specific delimitation. No viable seeds were produced in crosses between <i>B. australis</i> and <i>B. pilosa</i> , two species of southern Brazil that were formerly considered conspecific with <i>B. uniflora</i> .
604	1998. Plowman, T.. A revision of the South American species of <i>Brunfelsia</i> (Solanaceae). Fieldiana. Botany. 39: 1-135.	All species were artificially self pollinated, although selfing appears to take place naturally...However, no viable seed was produced from any of the self-pollinated individuals, indicating that these species are self- incompatible.

605	1998. Plowman, T.. A revision of the South American species of Brunfelsia (Solanaceae). Fieldiana. Botany. 39: 1-135.	They are extremely fragrant in the evening and apparently are pollinated by night-flying moths (Sphingidae).
606	1998. Plowman, T.. A revision of the South American species of Brunfelsia (Solanaceae). Fieldiana. Botany. 39: 1-135.	Vegetative reproduction may also occur to a limited extent by the rooting of broken branches on the forest floor. This has been observed in <i>B. chiricaspis</i> . [unknown for <i>B. australis</i>]
607	1998. Plowman, T.. A revision of the South American species of Brunfelsia (Solanaceae). Fieldiana. Botany. 39: 1-135.	Most species are slow-growing woody shrubs that vary in the time required to mature from seedling to flowering plant. Under greenhouse conditions plants mature from 6 months (<i>B. latifolia</i>) to 2 or more years after germination. Several species are known to flower while the plants are still small, even though they may eventually become trees in nature.
701	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Seeds angled, to 0.5" long. [no means of external attachment]
702	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	widely cultivated for its showy flowers that age from purple to white
703	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Seeds angled, to 0.5" long [no evidence, and not grown with produce]
704	2005. Nores, M./Cerana, M. M./Serra, D. A.. Dispersal of forest birds and trees along the Uruguay River in southern South America. Diversity and Distributions. 11: 205-217.	Reproduction of <i>Brunfelsia australis</i> described as zoochorous
705	2005. Nores, M./Cerana, M. M./Serra, D. A.. Dispersal of forest birds and trees along the Uruguay River in southern South America. Diversity and Distributions. 11: 205-217.	Reproduction of <i>Brunfelsia australis</i> described as zoochorous. Habitat listed as NR (non-riparian).
706	2005. Goncalves, A. E.. Solanaceae. Flora Zambesiaca. 8: .Board of Trustees of the Royal Botanic Gardens, Kew, http://apps.kew.org/efloras/namedetail.do?qry=na melist&flora=fz&taxon=11326&nameid=28714	fruit fleshy, 1-2.2 cm long, subglobose to ovoid, tardily dehiscent.
706	2005. Nores, M./Cerana, M. M./Serra, D. A.. Dispersal of forest birds and trees along the Uruguay River in southern South America. Diversity and Distributions. 11: 205-217.	Reproduction of <i>Brunfelsia australis</i> described as zoochorous
706	2010. James Cook University. Plants on Townsville Campus - <i>Brunfelsia australis</i> . http://cms.jcu.edu.au/discovernature/planttownsvill e/JCUDEV_015065	Fruit is a capsule.
707	2005. Goncalves, A. E.. Solanaceae. Flora Zambesiaca. 8: .Board of Trustees of the Royal Botanic Gardens, Kew, http://apps.kew.org/efloras/namedetail.do?qry=na melist&flora=fz&taxon=11326&nameid=28714	fruit fleshy, 1-2.2 cm long, subglobose to ovoid, tardily dehiscent.
708	2005. Nores, M./Cerana, M. M./Serra, D. A.. Dispersal of forest birds and trees along the Uruguay River in southern South America. Diversity and Distributions. 11: 205-217.	Reproduction of <i>Brunfelsia australis</i> described as zoochorous
801	2010. WRA Specialist. Personal Communication.	Unknown seed production
802	1998. Plowman, T.. A revision of the South American species of Brunfelsia (Solanaceae). Fieldiana. Botany. 39: 1-135.	The seeds of <i>Brunfelsia</i> species germinate within 2-4 weeks of planting and are relatively short-lived. They will not tolerate desiccation.
803	2010. WRA Specialist. Personal Communication.	Unknown if well controlled by herbicides
804	2005. Staples, G. W./Herbst, D. R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI.	Plants should be pruned heavily after flowering to stimulate new growth and flower production for the next season.

