

**Taxon:** *Platycerium bifurcatum* (Cav.) C. Chr.

**Family:** Polypodiaceae

**Common Name(s):** common staghorn fern  
elkhorn fern

**Synonym(s):** *Acrostichum bifurcatum* Cav.

**Assessor:** No Assessor

**Status:** Assessor Approved

**End Date:** 24 May 2018

**WRA Score:** 4.0

**Designation:** EVALUATE

**Rating:** Evaluate

**Keywords:** Epiphytic Fern, Naturalized, Ornamental, Spreads Vegetatively, Wind-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)	High
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	y
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed	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		
305	Congeneric weed		
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

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	n
411	Climbing or smothering growth habit	y=1, n=0	y
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		
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		
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m <sup>2</sup> )	y=1, n=-1	y
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	n
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
	Jones, D. L. 1987. Encyclopedia of Ferns. Timber Press, Portland, OR	"This fern is tremendously variable and many forms and hybrids are grown, mostly under cultivar names." [No evidence of domestication]
	De Winter, W.P. and Amoroso, V.B. (eds.). (2003). Plant Resources of South-East Asia No 15(2). Cryptogams: Ferns and fern allies. Backhuys Publishers, Leiden, The Netherlands	[No evidence] "Germplasm collections of <i>P. bifurcatum</i> are not known to exist. Many breeding programmes for <i>P. bifurcatum</i> exist and numerous ornamental cultivars have been released."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	NA

201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 23 May 2018]	"Native Australasia AUSTRALIA: Australia [New South Wales, Queensland]"
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"The most widespread species of <i>Platycerium</i> , <i>P. bifurcatum</i> is native to Australia, New Caledonia. New Guinea. and Lord Howe Island and is popular in horticulture."

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 23 May 2018]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Missouri Botanical Garden. 2018. <i>Platycerium bifurcatum</i> . <a href="http://www.missouribotanicalgarden.org">http://www.missouribotanicalgarden.org</a> . [Accessed 24 May 2018]	"Zone: 9 to 12"

Qsn #	Question	Answer
	De Winter, W.P. and Amoroso, V.B. (eds.). (2003). Plant Resources of South-East Asia No 15(2). Cryptogams: Ferns and fern allies. Backhuys Publishers, Leiden, The Netherlands	[Elevation range of 2000 m, demonstrating environmental versatility] "P. bifurcatum grows as an epiphyte in various kinds of forest and open vegetation. Locally it can be the dominant epiphytic species. It is found from sea-level up to 2000 m altitude. It is well adapted to dry conditions."
	Jones, D. L. 1987. Encyclopedia of Ferns. Timber Press, Portland, OR	[Forms may tolerate different climates] "Platycerium bifurcatum... In Australia the species extends into temperate regions and plants from such southerly collections are very cold-hardy and will tolerate severe frosts. Those from the tropics are less cold-hardy but are still adaptable and easily grown."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"The most widespread species of <i>Platycerium</i> , <i>P. bifurcatum</i> is native to Australia, New Caledonia, New Guinea, and Lord Howe Island and is popular in horticulture. Localized on tree trunks and branches, usually near buildings in areas of high rainfall on O'ahu (Makiki Heights, middle and upper Nu'uuanu Valley, and Lyon Arboretum in Minoa Valley), Maui ('Ulupalakua Ranch), and Hawai 'i (Hilo, along Banyan Drive). It was first collected growing wild on Maui in 1991."

Qsn #	Question	Answer
205	Does the species have a history of repeated introductions outside its natural range?	y
	<b>Source(s)</b>	<b>Notes</b>
	Brownsey, P.J. & Perrie, L.R. 2014: Polypodiaceae (excluding Notogrammitis). In: Breitwieser, I.; Heenan, P.B.; Wilton, A.D. Flora of New Zealand - Ferns and Lycophytes. Fascicle 1. Manaaki Whenua Press, Lincoln	"Distribution: North Island: Northland, Auckland, Volcanic Plateau. Known from Russell, Mt Maunganui and a few collections around Auckland. Occurs naturally in Australia (Queensland, New South Wales) and Lord Howe Island (Bostock & Spokes 1998). Biostatus: Exotic; casual."
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"Localized on tree trunks and branches, usually near buildings in areas of high rainfall on O'ahu (Makiki Heights, middle and upper Nu'uuanu Valley, and Lyon Arboretum in Manoa Valley), Maui ('Ulupalakua Ranch), and Hawai 'i (Hilo, along Banyan Drive). It was first collected growing wild on Maui in 1991."
	De Winter, W.P. and Amoroso, V.B. (eds.). (2003). Plant Resources of South-East Asia No 15(2). Cryptogams: Ferns and fern allies. Backhuys Publishers, Leiden, The Netherlands	"P. bifurcatum, in the wide sense used here, is found from Java, through the Lesser Sunda Islands and New Guinea to eastern Australia. As an ornamental it is cultivated all over the world."
	Pemberton, R. (2003). The Common Staghorn Fern, <i>Platycerium bifurcatum</i> , Naturalizes in Southern Florida. American Fern Journal, 93(4), 203-206	[Florida] " <i>Platycerium bifurcatum</i> has probably had a long history of cultivation in southern Florida. The 1887 sales catalogue of the Royal Palm Nursery, Oneca, Manatee Co., lists <i>P. alcicorne</i> (Willem.) Tardieu. This species may have actually been <i>P. bifurcatum</i> , a similar species (Hoshizaki, B. J. and R. C. Moran. 2001. Fern Grower's Manuel. Timber Press, Portland, OR.). <i>Platycerium bifurcatum</i> tolerates Florida's subtropical climate better than <i>P. alcicorne</i> , native of eastern Africa and Madagascar (Hoshizaki and Moran, 2001). While <i>P. bifurcatum</i> may have naturalized previously, it did not persist."

301	Naturalized beyond native range	y
	<b>Source(s)</b>	<b>Notes</b>
	Brownsey, P.J. & Perrie, L.R. 2014: Polypodiaceae (excluding Notogrammitis). In: Breitwieser, I.; Heenan, P.B.; Wilton, A.D. Flora of New Zealand - Ferns and Lycophytes. Fascicle 1. Manaaki Whenua Press, Lincoln	"Distribution: North Island: Northland, Auckland, Volcanic Plateau. Known from Russell, Mt Maunganui and a few collections around Auckland. Occurs naturally in Australia (Queensland, New South Wales) and Lord Howe Island (Bostock & Spokes 1998). Biostatus: Exotic; casual. Habitat: Recorded as a perching epiphyte on branches of <i>Cordyline australis</i> (cabbage tree), <i>Metrosideros excelsa</i> (pōhutukawa), <i>Ficus macrophylla</i> (Moreton Bay fig) and <i>Eriobotrya japonica</i> (loquat) in urban areas where it is likely to have spread from nearby cultivated plants. First record: Heenan et al. (2004, p. 803). Voucher: CHR 247069, 1971."

Qsn #	Question	Answer
	<p>Pemberton, R. (2003). The Common Staghorn Fern, <i>Platycerium bifurcatum</i>, Naturalizes in Southern Florida. <i>American Fern Journal</i>, 93(4), 203-206</p>	<p>"<i>Platycerium bifurcatum</i> (Cav.) C. Chr. is a popular ornamental staghorn fern that is widely cultivated in the tropics and subtropics and under protection in cooler climates. Native to Australia, New Guinea and Indonesia (Jones, D. L. 1987. <i>Encyclopedia of Ferns</i>. Timber Press, Portland, Oregon.), it thrives out-of-doors in southern Florida, where large cultivated plants suspended by chains hung from residential trees or houses are a frequent sight. These ferns are exceptionally abundant in some areas. For instance, at least 19 large cultivated <i>P. bifurcatum</i> plants grow in 7 of the 11 yards on one street in Ft. Lauderdale, Broward County, southeastern Florida" ... "With the naturalization of <i>P. bifurcatum</i> in Florida, the number of exotic ferns and fern allies in the state is now 34 (Wunderlin, R. P. 1998. <i>Guide to the Vascular Plants of Florida</i>. University Press of Florida, Gainesville)."</p>
	<p>Randall, R.P. (2017). <i>A Global Compendium of Weeds</i>. 3rd Edition. Perth, Western Australia. R.P. Randall</p>	<p>"<i>Platycerium bifurcatum</i> (Cav.) C.Chr. Polypodiaceae Total N° of Refs: 15 Global Risk Score: 1.44 Rating: Low Preferred Climate/s: Mediterranean, Tropical Origin: Aust Major Pathway/s: Herbal, Ornamental Dispersed by: Humans, Escapee References: United States of America-CE- 233, United States of America-CE-617, Pacific-E-621, United States of America-N- 301, New Zealand-N-823, United States of America-N-839, United States of America- N-101, New Zealand-U-919, Portugal-N- 1006, Europe-N-819, United States of America-N-1292, Global-CD-1611, El Salvador-N-1849, United States of America-N-742, Cook Islands-W-1977."</p>
	<p>Wilson, K.A. 1996. Alien Ferns in Hawaii. <i>Pacific Science</i> 50 (2): 127-141</p>	<p>"<i>Platycerium bifurcatum</i> (Cavanilles) C. Christensen ssp. <i>bifurcatum</i>, Common Staghorn Fern, is naturalized on O'ahu, Maui, and Hawai'i in the vicinity of populated areas where it has escaped from cultivation in gardens. It was first collected in 1991 from large trees near the headquarters of 'Ulupalakua Ranch, East Maui, by R. Hobby, who counted more than 100 plants growing as epiphytes (Hobby 3380, BISH). Other populations of this popular cultivated fern are known in high, difficult-to-reach tree branches in residences along Tantalus Drive, Makiki Heights, Honolulu, O'ahu; trees in gardens along the Pali Highway, Nu'uuanu Valley, O'ahu; and large trees growing along Banyan Drive, Hilo, Hawai'i."</p>
	<p>Palmer, D.D. 2003. <i>Hawaii's Ferns and Fern Allies</i>. University of Hawaii Press, Honolulu, HI</p>	<p>"The most widespread species of <i>Platycerium</i>, <i>P. bifurcatum</i> is native to Australia, New Caledonia. New Guinea. and Lord Howe Island and is popular in horticulture. Localized on tree trunks and branches, usually near buildings in areas of high rainfall on O'ahu (Makiki Heights, middle and upper Nu'uuanu Valley, and Lyon Arboretum in Minoa Valley), Maui ('Ulupalakua Ranch), and Hawai 'i (Hilo, along Banyan Drive). It was first collected growing wild on Maui in 1991."</p>

Qsn #	Question	Answer
302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	[A desired ornamental/garden plant that escapes from cultivation. No evidence of detrimental impacts in gardens or landscaping] "Platycerium bifurcatum (Cavanilles) C. Christensen ssp. bifurcatum, Common Staghorn Fern, is naturalized on O'ahu, Maui, and Hawai'i in the vicinity of populated areas where it has escaped from cultivation in gardens."

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

Qsn #	Question	Answer
304	Environmental weed	
	Source(s)	Notes
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	"The known populations of naturalized plants are localized, and their continued spread bears watching." [No impacts reported at the time of this publication]
	Pemberton, R. (2003). The Common Staghorn Fern, <i>Platycerium bifurcatum</i> , Naturalizes in Southern Florida. American Fern Journal, 93(4), 203-206	[Speculation as a potential environmental weed] "If <i>P. bifurcatum</i> plants become very dense on trees, they could displace native epiphytes. In the oak forests presently colonized, most of the branches, including those with <i>P. bifurcatum</i> are covered with resurrection fern ( <i>Pleopeltis polypodioides</i> Humb. & Bonpl. ex Willd.), and five species of bromeliads ( <i>Tillandsia balbisiana</i> Schult. & Schult.f., <i>T. fasciculata</i> Sw., <i>T. recurvata</i> (L.) L., <i>T. setaceae</i> Sw., <i>T. usneoides</i> (L.) L., <i>T. utriculata</i> L.) are common. Two of these bromeliads, <i>T. fasciculata</i> and <i>T. utriculata</i> , are classified as endangered by the State of Florida because of the attack of an exotic weevil which specifically feeds on bromeliads (Coile, N.C. 2000. Notes on Florida's endangered and threatened plants. Florida Division of Plant Industry, Bureau of Entomology, Nematology and Plant Pathology-Botany Section Contribution No. 38, 3rd edition. p. 122.). If <i>P. bifurcatum</i> becomes abundant in other preserves, which are rich in rare endangered epiphytic orchids and bromeliads, it could become more serious threat. Its presence in Tree Tops and Flamingo represents another exotic species in natural areas already plagued with abundant introduced species. It is a more obviously nonnative component of the forests, than are the exotic figs ( <i>Ficus</i> spp.) and shoebutton ardisia ( <i>Ardisia elliptica</i> Thunb.), which have native counterparts. Given the incipient naturalization, despite an apparent long history of cultivation, and its modest abundance, it seems unlikely that <i>P. bifurcatum</i> will approach the severity of other invasive ferns in Florida."
	Florida Exotic Pest Plant Council. (2017). FLEPPC 2017 List of Invasive Plant Species. <a href="http://www.fleppc.org/">http://www.fleppc.org/</a> . [Accessed 24 May 2018]	<i>Platycerium bifurcatum</i> listed as a Category II species: "Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. These species may become ranked Category I if ecological damage is demonstrated."

305	Congeneric weed	
	Source(s)	Notes
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	" <i>Platycerium superbum</i> ... Localized on tree branches near cultivated plants in upper Nu'uuanu Valley, O'ahu. Apparently in the early stages of becoming established in the wild." [No evidence of detrimental impacts to date]
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	<i>Platycerium stemaria</i> is listed as "I - Invasive Species may have escaped from gardens, cultivation or both; source not specific but includes some crop and pasture species." ... <i>Platycerium superbum</i> listed as naturalized & as a "X - Noxious Weed Species that landholders are required by an act of law to manage, control or eradicate." [Unable to verify impacts]

401	Produces spines, thorns or burrs	n
-----	----------------------------------	---



Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	[No evidence] "Plants medium-sized, epiphytic. Rhizomes short usually completely obscured by fronds. Fronds of 2 kinds, both densely covered with soft, stellate hairs when young: sterile fronds broad, round to kidney-shaped. flattened against the substrate, persistent, often dry and brown, erect, overlapping, forming a basal "nest" or "basket";fertile "staghorn" fronds erect to pendent. entire or branched into narrow, elongated segments, coriaceous."

402	Allelopathic	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2018. Personal Communication	Unknown. No evidence found

403	Parasitic	n
	<b>Source(s)</b>	<b>Notes</b>
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"Plants medium-sized, epiphytic." [Polypodiaceae. No evidence]

404	Unpalatable to grazing animals	
	<b>Source(s)</b>	<b>Notes</b>
	Yerba Buena Nursery. 2018. <i>Platycerium bifurcatum</i> . <a href="http://www.yerbabuenanursery.com/online_album/0574.htm">http://www.yerbabuenanursery.com/online_album/0574.htm</a> . [Accessed 24 May 2018]	"Deer Resistant - Resistance High"
	Missouri Botanical Garden. 2018. <i>Platycerium bifurcatum</i> . <a href="http://www.missouribotanicalgarden.org">http://www.missouribotanicalgarden.org</a> . [Accessed 24 May 2018]	"Tolerate: Rabbit" [Possibly unpalatable]
	WRA Specialist. 2018. Personal Communication	Possibly unpalatable, & as an epiphyte, generally out of reach of most browsing animals in the Hawaiian Islands

405	Toxic to animals	n
	<b>Source(s)</b>	<b>Notes</b>
	ASPCA. 2018. Toxic and Non-Toxic Plants - Common Staghorn Fern. <a href="https://www.aspca.org/pet-care/animal-poison-control/toxic-and-non-toxic-plants/common-staghorn-fern">https://www.aspca.org/pet-care/animal-poison-control/toxic-and-non-toxic-plants/common-staghorn-fern</a> . [Accessed 24 May 2018]	"Toxicity: Non-Toxic to Dogs, Non-Toxic to Cats, Non-Toxic to Horses"
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[No evidence] " <i>Platycerium bifurcatum</i> ... Antibacterial"

406	Host for recognized pests and pathogens	
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Jones, D. L. 1987. Encyclopedia of Ferns. Timber Press, Portland, OR	"Fron d tip s of the Elkhorn ( <i>Platycerium bifurcatum</i> ) and some other polypodium ferns such as <i>Microsorium punctatum</i> are sometimes damaged by a small grub which feed s among the sori. The grub is the larva of a small, clear-winged moth. It feeds by tunneling through the spore patches and into .. the leaf tissue causing browning and death of the frond tips. Outbreaks are rarely severe and mainly occur during the summer. The pest is restricted to tropical and subtropical regions." ... "In tropical and subtropical regions, ferns of the genus <i>Platycerium</i> are sometimes attacked by a caterpillar which bores a short tunnel into the sterile fronds just near the crown where the fertile fronds emerge. The hole acts as a daytime shelter and is surrounded by a web which contains the insects droppings. The caterpillar emerges at night to feed on developing sterile and fertile fronds. Frequently the web is adorned with pieces of leaf which are presumably for camouflage purposes. The caterpillar is about 1.2 cm (0.5 in) long and dark grey. It matures into a small, grey moth. This pest is seasonal, but persistent attacks can be very damaging. The Elkhorn <i>P. bifurcatum</i> is sometimes severely attacked even to the point where large clumps may be killed."
	Missouri Botanical Garden. 2018. <i>Platycerium bifurcatum</i> . <a href="http://www.missouribotanicalgarden.org">http://www.missouribotanicalgarden.org</a> . [Accessed 24 May 2018]	"No serious insect or disease problems. Watch for scale."
	Australian National Botanic Gardens and Centre for Australian National Biodiversity Research. 2015. Growing Native Plants. <i>Platycerium bifurcatum</i> . <a href="https://www.anbg.gov.au/gnp/interns-2004/platycerium-bifurcatum.html">https://www.anbg.gov.au/gnp/interns-2004/platycerium-bifurcatum.html</a> . [Accessed 24 May 2018]	"They are not prone to attack from many pests and insects, but may be preyed upon by scale bugs and mealy bugs. These pests may be removed from the plant by scratching them off. Ladybirds will eat these pests, and so may help to control them."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[No evidence] " <i>Platycerium bifurcatum</i> ... Antibacterial"

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	De Winter, W.P. and Amoroso, V.B. (eds.). (2003). Plant Resources of South-East Asia No 15(2). Cryptogams: Ferns and fern allies. Backhuys Publishers, Leiden, The Netherlands	[No evidence. May burn if host tree is on fire, but unlikely to increase fire hazard in areas in which it grows] " <i>P. bifurcatum</i> grows as an epiphyte in various kinds of forest and open vegetation. Locally it can be the dominant epiphytic species. It is found from sea-level up to 2000 m altitude. It is well adapted to dry conditions."

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes

Qsn #	Question	Answer
	Australian National Botanic Gardens and Centre for Australian National Biodiversity Research. 2015. Growing Native Plants. <i>Platycerium bifurcatum</i> . <a href="https://www.anbg.gov.au/gnp/interns-2004/platycerium-bifurcatum.html">https://www.anbg.gov.au/gnp/interns-2004/platycerium-bifurcatum.html</a> . [Accessed 24 May 2018]	" <i>P. bifurcatum</i> plants require a shady area to grow in, and need to be kept moist."
	Missouri Botanical Garden. 2018. <i>Platycerium bifurcatum</i> . <a href="http://www.missouribotanicalgarden.org">http://www.missouribotanicalgarden.org</a> . [Accessed 24 May 2018]	"Sun: Part shade"
	The Royal Horticultural Society. 2018. <i>Platycerium bifurcatum</i> - common staghorn fern. <a href="https://www.rhs.org.uk/plants/details?plantid=1488">https://www.rhs.org.uk/plants/details?plantid=1488</a> . [Accessed 24 May 2018]	"Sunlight - Partial Shade"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	Source(s)	Notes
	McCarthy, M. R. (2007). Bryophyte Influence on Terrestrial and Epiphytic Fern Gametophytes. Master of Science Thesis. Miami University, Oxford, Ohio	"Epiphytic, <i>Neurodium lanceolatum</i> and <i>Platycerium bifurcatum</i> failed to germinate on terrestrial soil" ... "Development of epiphytic <i>Platycerium bifurcatum</i> was exceptionally low on all substrates (Table 2). Previous studies indicate that <i>Platycerium bifurcatum</i> is expected to germinate on agar in 5-7 days and develop antheridia in 20-24 days (Fig. 4). Due to the exceptionally low germination and slow development of <i>Platycerium bifurcatum</i> across all substrates, it was dropped from further analysis."
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"Plants medium-sized, epiphytic."
	The Royal Horticultural Society. 2018. <i>Platycerium bifurcatum</i> - common staghorn fern. <a href="https://www.rhs.org.uk/plants/details?plantid=1488">https://www.rhs.org.uk/plants/details?plantid=1488</a> . [Accessed 24 May 2018]	"Soil Loam pH Neutral"

411	Climbing or smothering growth habit	y
	Source(s)	Notes
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"Plants medium-sized, epiphytic. Rhizomes short usually completely obscured by fronds. Fronds of 2 kinds, both densely covered with soft, stellate hairs when young: sterile fronds broad, round to kidney-shaped. flattened against the substrate, persistent, often dry and brown, erect, overlapping, forming a basal "nest" or "basket"; fertile "staghorn" fronds erect to pendent. entire or branched into narrow, elongated segments, coriaceous."
	Australian National Botanic Gardens and Centre for Australian National Biodiversity Research. 2015. Growing Native Plants. <i>Platycerium bifurcatum</i> . <a href="https://www.anbg.gov.au/gnp/interns-2004/platycerium-bifurcatum.html">https://www.anbg.gov.au/gnp/interns-2004/platycerium-bifurcatum.html</a> . [Accessed 24 May 2018]	"The Elkhorn fern is an epiphyte, growing on the trunks and branches of trees."

412	Forms dense thickets	n
-----	----------------------	---

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	De Winter, W.P. and Amoroso, V.B. (eds.). (2003). Plant Resources of South-East Asia No 15(2). Cryptogams: Ferns and fern allies. Backhuys Publishers, Leiden, The Netherlands	" <i>P. bifurcatum</i> grows as an epiphyte in various kinds of forest and open vegetation. Locally it can be the dominant epiphytic species." [Can be dominant, but as an epiphyte, does not form thickets or impede movement]

501	Aquatic	n
	<b>Source(s)</b>	<b>Notes</b>
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"Localized on tree trunks and branches, usually near buildings in areas of high rainfall"

502	Grass	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 23 May 2018]	Polypodiaceae

503	Nitrogen fixing woody plant	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 23 May 2018]	Polypodiaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	<b>Source(s)</b>	<b>Notes</b>
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"Plants medium-sized, epiphytic. Rhizomes short usually completely obscured by fronds."

601	Evidence of substantial reproductive failure in native habitat	n
	<b>Source(s)</b>	<b>Notes</b>
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"The most widespread species of <i>Platycterium</i> , <i>P. bifurcatum</i> is native to Australia, New Caledonia. New Guinea. and Lord Howe Island and is popular in horticulture." [No evidence]

602	Produces viable seed	y
	<b>Source(s)</b>	<b>Notes</b>
	Palmer, D.D. 2003. Hawaii's Ferns and Fern Allies. University of Hawaii Press, Honolulu, HI	"Sporangia irregularly covering most of lower surfaces of ultimate lobe tips of fertile fronds, often extending around sinuses."

Qsn #	Question	Answer
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	[Spores] "The fertile fronds bear large areas of sporangia on the lower surfaces of their lobe tips; great quantities of spores are released, which are carried to nearby trees, giving rise to new plants."

603	Hybridizes naturally	
	Source(s)	Notes
	Jones, D. L. 1987. Encyclopedia of Ferns. Timber Press, Portland, OR	"This fern is tremendously variable and many forms and hybrids are grown, mostly under cultivar names." [Unknown if natural hybrids form]

604	Self-compatible or apomictic	
	Source(s)	Notes
	Pemberton, R. (2003). The Common Staghorn Fern, <i>Platycerium bifurcatum</i> , Naturalizes in Southern Florida. American Fern Journal, 93(4), 203-206	"It is not known whether <i>Platycerium</i> gametophytes are able to self fertilize (B. J. Hoshizaki, pers.com.). The ability to self fertilize would make naturalization easier because only one spore would be needed to establish a plant and population. Self fertilization seems desirable in epiphytic ferns growing on tall trees in dense forests. Ferns that are long distance dispersers are more likely to self fertilize (Peck, J., C. Peck and D. Farrar. 1990. Amer. J. Bot 80:126-126.)."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Mehlreter, K., Walker, L.R. & Sharpe, J.M. 2010. Fern Ecology. Cambridge University Press, Cambridge, UK	[Requires water, but otherwise nothing specialized] "For fertilization, the sperm cell must swim through water to an egg cell"

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	Jones, D. L. 1987. Encyclopedia of Ferns. Timber Press, Portland, OR	"Clumps of vigorous species such as <i>P. bifurcatum</i> may need to be divided when they get too big."
	De Winter, W.P. and Amoroso, V.B. (eds.). (2003). Plant Resources of South-East Asia No 15(2). Cryptogams: Ferns and fern allies. Backhuys Publishers, Leiden, The Netherlands	"Mature plants develop additional growth centres ('pups') which can be severed and planted apart."
	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	"Pups, from which new plants are readily propagated, develop from the roots of mature plants."
	Australian National Botanic Gardens and Centre for Australian National Biodiversity Research. 2015. Growing Native Plants. <i>Platycerium bifurcatum</i> . <a href="https://www.anbg.gov.au/gnp/interns-2004/platycerium-bifurcatum.html">https://www.anbg.gov.au/gnp/interns-2004/platycerium-bifurcatum.html</a> . [Accessed 24 May 2018]	"The Elkhorn fern is an epiphyte, growing on the trunks and branches of trees. Each plant is composed of a mass of plantlets. A plantlet consists of a nest leaf 12-30 cm wide, lying against the bark of the host tree. The nest leaves of neighbouring plantlets overlap one another."

607	Minimum generative time (years)	>3
-----	---------------------------------	----

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Pemberton, R. (2003). The Common Staghorn Fern, <i>Platycterium bifurcatum</i> , Naturalizes in Southern Florida. <i>American Fern Journal</i> , 93(4), 203-206	"Under optimal conditions, it can take <i>P. bifurcatum</i> up to a year to grow from a spore to a young sporophyte to initiate foliage fronds, and another 3-4 years to produce fertile fronds (B.J. Hoshizaki, pers. com.)" [1 year to grow foliage fronds + 3-4 years to produce fertile fronds = 4-5 years to reproductive maturity]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	<b>Source(s)</b>	<b>Notes</b>
	De Winter, W.P. and Amoroso, V.B. (eds.). (2003). <i>Plant Resources of South-East Asia No 15(2). Cryptogams: Ferns and fern allies.</i> Backhuys Publishers, Leiden, The Netherlands	" <i>P. bifurcatum</i> grows as an epiphyte in various kinds of forest and open vegetation." [Spores are small, & could attach to shoes or equipment, but would not likely be dispersed to an epiphytic substrate]

702	Propagules dispersed intentionally by people	y
	<b>Source(s)</b>	<b>Notes</b>
	Jones, D. L. 1987. <i>Encyclopedia of Ferns.</i> Timber Press, Portland, OR	"A widespread and common <i>Platycterium</i> which grows vigorously and is very rewarding in cultivation."
	Palmer, D.D. 2003. <i>Hawaii's Ferns and Fern Allies.</i> University of Hawaii Press, Honolulu, HI	"The most widespread species of <i>Platycterium</i> , <i>P. bifurcatum</i> is native to Australia, New Caledonia, New Guinea, and Lord Howe Island and is popular in horticulture."
	De Winter, W.P. and Amoroso, V.B. (eds.). (2003). <i>Plant Resources of South-East Asia No 15(2). Cryptogams: Ferns and fern allies.</i> Backhuys Publishers, Leiden, The Netherlands	"There is high demand for <i>P. bifurcatum</i> as an ornamental species in Europe, Australia and the United States, and as a result there is large scale production of the plant in these areas."

703	Propagules likely to disperse as a produce contaminant	
	<b>Source(s)</b>	<b>Notes</b>
	Wilson, K.A. 1996. Alien Ferns in Hawaii. <i>Pacific Science</i> 50 (2): 127-141	"The fertile fronds bear large areas of sporangia on the lower surfaces of their lobe tips; great quantities of spores are released, which are carried to nearby trees, giving rise to new plants." [Wind-dispersed spores could be dispersed into soil of other potted plants]

704	Propagules adapted to wind dispersal	y
	<b>Source(s)</b>	<b>Notes</b>
	Wilson, K.A. 1996. Alien Ferns in Hawaii. <i>Pacific Science</i> 50 (2): 127-141	"The fertile fronds bear large areas of sporangia on the lower surfaces of their lobe tips; great quantities of spores are released, which are carried to nearby trees, giving rise to new plants. The known populations of naturalized plants are localized, and their continued spread bears watching."

705	Propagules water dispersed	n
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	"The fertile fronds bear large areas of sporangia on the lower surfaces of their lobe tips; great quantities of spores are released, which are carried to nearby trees, giving rise to new plants." [Wind-dispersed spores could be moved by water, but would be unlikely to be dispersed to a suitable epiphytic substrate]

706	Propagules bird dispersed	n
	Source(s)	Notes
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	"The fertile fronds bear large areas of sporangia on the lower surfaces of their lobe tips; great quantities of spores are released, which are carried to nearby trees, giving rise to new plants." [Wind-dispersed]

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	[Wind-dispersed] "The fertile fronds bear large areas of sporangia on the lower surfaces of their lobe tips; great quantities of spores are released, which are carried to nearby trees, giving rise to new plants."

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	[Wind-dispersed. Unlikely to be consumed or deposited on a suitable epiphytic substrate] "The fertile fronds bear large areas of sporangia on the lower surfaces of their lobe tips; great quantities of spores are released, which are carried to nearby trees, giving rise to new plants."

801	Prolific seed production (>1000/m2)	y
	Source(s)	Notes
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	"The fertile fronds bear large areas of sporangia on the lower surfaces of their lobe tips; great quantities of spores are released, which are carried to nearby trees, giving rise to new plants. The known populations of naturalized plants are localized, and their continued spread bears watching."

Qsn #	Question	Answer
802	<b>Evidence that a persistent propagule bank is formed (&gt;1 yr)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Camloh, M. (1999). Spore Age and Sterilization Affects Germination and Early Gametophyte Development of <i>Platycterium bifurcatum</i> . <i>American Fern Journal</i> , 89(2), 124-132	[Unlikely. Germination decreases with age] "Spore age and sterilization affect spore germination and early gametophyte development in <i>P. bifurcatum</i> ." ... "When <i>Platycterium</i> spores were stored for over three months, a substantial decrease in germination occurred. Similarly, in the fern <i>Polypodium vulgare</i> , the rate of germination declines with increasing spore age, but only by 9% after one year of storage (Smith and Robinson, 1975)."
803	<b>Well controlled by herbicides</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2018. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species
804	<b>Tolerates, or benefits from, mutilation, cultivation, or fire</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Kubiak, P. J. 2009. Fire responses of bushland plants after the January 1994 wildfires in northern Sydney. <i>Cunninghamia</i> , 11(1): 131-165	"Appendix 1. ... <i>Platycterium bifurcatum</i> - K = majority of adult plants killed by the fires"
	Pemberton, R. (2003). The Common Staghorn Fern, <i>Platycterium bifurcatum</i> , Naturalizes in Southern Florida. <i>American Fern Journal</i> , 93(4), 203-206	"Older staghorn plants may be able to tolerate freezes because their rhizomes are insulated by the masses of base fronds and sometimes have the ability to produce new base and foliage fronds if the old ones are killed."
805	<b>Effective natural enemies present locally (e.g. introduced biocontrol agents)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Wilson, K.A. 1996. Alien Ferns in Hawaii. <i>Pacific Science</i> 50 (2): 127-141	[Unknown] " <i>Platycterium bifurcatum</i> (Cavanilles) C. Christensen ssp. <i>bifurcatum</i> , Common Staghorn Fern, is naturalized on O'ahu, Maui, and Hawai'i in the vicinity of populated areas where it has escaped from cultivation in gardens. It was first collected in 1991 from large trees near the headquarters of 'Ulupalakua Ranch, East Maui, by R. Hobdy, who counted more than 100 plants growing as epiphytes (Hobdy 3380, BISH). Other populations of this popular cultivated fern are known in high, difficult-to-reach tree branches in residences along Tantalus Drive, Makiki Heights, Honolulu, O'ahu; trees in gardens along the Pali Highway, Nu'uuanu Valley, O'ahu; and large trees growing along Banyan Drive, Hilo, Hawai'i."



**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Thrives in tropical climates
- Naturalized on Oahu, Maui & Hawaii (Hawaiian Islands), Florida, & possibly New Zealand
- Considered a potential environmental weed in Florida
- May be unpalatable to browsing animals
- Shade-tolerant
- An epiphyte (could compete with native epiphytic species)
- Reproduces by spores & vegetatively by “pups”
- Spores dispersed by wind & intentionally cultivated by people
- Prolific spore production

Low Risk Traits

- Despite naturalization, no negative impacts reported to date
- Unarmed (no spines, thorns, or burrs)
- Non-toxic
- Ornamental
- Reaches maturity in 4+ years
- Spores may lose viability in <1 year (longevity in natural environment undocumented)

Second Screening Results for Vines & Lianas

- (A) Reported as a weed of cultivated lands?> No  
(B) Shade tolerant or known to form dense stands?> Tolerates shade  
(C) Bird- Or clearly wind- dispersed?> Wind-dispersed  
(D) Life-cycle <4 years? No. Reaches maturity in 4+ years

Outcome = Evaluate