Taxon: Pellaea rotundifolia (G. Forst.) Hook. **Family:** Pteridaceae

Common Name(s): button fern
roundleaf fern

Synonym(s): Pteris rotundifolia G. Forst.

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 6 Feb 2017

WRA Score: 5.0 **Designation:** L **Rating:** Low Risk

Keywords: Ornamental, Non-Toxic, Shade-Tolerant, Spore-Propagated, 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)	Intermediate
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	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	?
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)	n
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	y=1, n=0	n
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)		
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		
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
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		
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)	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		
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**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	[No evidence of domestication] "DIST.: Three Kings, N., S., Ch. Coastal to montane forest and rocky places (these often reduced) throughout. Also Norfolk Id and Australia."

Qsn #	Question	Answer
102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	NA

Qsn #	Question	Answer
103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	NA

Qsn #	Question	Answer
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**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	"DIST.: Three Kings, N., S., Ch. Coastal to montane forest and rocky places (these often reduced) throughout. Also Norfolk Id and Australia"

Qsn #	Question	Answer
202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	

Qsn #	Question	Answer
203	**Broad climate suitability (environmental versatility)**	**n**
	Source(s)	**Notes**
	Monrovia. (2016). Button Fern - Pellaea rotundifolia. http://www.monrovia.com/plant-catalog/plants/5157/button-fern/. [Accessed 6 Feb 2017]	"USDA Hardiness Zone: 8 - 9"
	Missouri Botanical Garden. (2016). Pellaea rotundifolia. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=251861&isprofile=0&force=1. [Accessed 6 Feb 2017]	"Zone: 9 to 11"

Qsn #	Question	Answer
204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	Source(s)	**Notes**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	"DIST.: Three Kings, N., S., Ch. Coastal to montane forest and rocky places (these often reduced) throughout. Also Norfolk Id and Australia." [Norfolk Island has a marine subtropical climate]

205	**Does the species have a history of repeated introductions outside its natural range?**	**?**
	Source(s)	**Notes**
	Brownsey, P.J. & Smith-Dodsworth, J.C. 1989. New Zealanc Ferns and Allied Plants. David Bateman Ltd, Auckland, New Zealand	"A popular house plant, cultivated under the name Button fern. Outdoors it likes open or shady conditions in light, rich soil."
	Dave's Garden. 2017. Roundleaf Fern, Button Fern - Pellaea rotundifolia. http://davesgarden.com/guides/pf/go/54037/. [Accessed]	"This plant has been said to grow in the following regions: Arcata, California El Cerrito, California Oceanside, California Sacramento, California Santa Rosa, California Big Pine Key, Florida Hollywood, Florida Fort George G Meade, Maryland Astoria, Oregon Conway, South Carolina Kalama, Washington" [Locations may be indoors as house plants]
	Missouri Botanical Garden. (2016). Pellaea rotundifolia. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=251861&isprofile=0&force=1. [Accessed 6 Feb 2017]	"Winter hardy to USDA Zones 9-11 where this fern is easily grown in filtered shade with regular water."

301	**Naturalized beyond native range**	**n**
	Source(s)	**Notes**
	Imada, C. 2012. Hawaiian Native and Naturalized Vascular Plants Checklist (December 2012 update). Bishop Musem Technical Report 60. Bishop Museum, Honolulu, HI	No evidence
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. 2016. Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/. [Accessed 18 Nov 2016]	No evidence to date

302	**Garden/amenity/disturbance 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

303	**Agricultural/forestry/horticultural weed**	**n**

Qsn #	Question	Answer
	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

305	Congeneric weed	n
	Source(s)	**Notes**
	Wilson, K.A. 1996. Alien Ferns in Hawaii. Pacific Science 50 (2): 127-141	"A native of Africa, Pellaea virid'is (ForskiU) Prantl, differs from the native P. ternifolia in its much larger and broader fronds with flat laminae and rounded pinnules and in its bright green, rather than dull gray-green, color. P. viridis was first collected growing wild in Hawaii by Lyon in 1928, on Pacific Heights ridge, Oahu, but he hao seen it there previously (Degener, 8). Neal writes (October 24, 1949) that she has also "seen this fern in a garden on Pacific Heights, presumably as a volunteer." It has apparently spread across the island to the Waianae Mountains, where it was first collected by "Potter, Bush, and Topping" near Puu Kaua in 1935. Grether found it between Puu Kaua and Puu Kanehoa to the north in 1946 (Grether 4236) ; and I found it to the south, growing in large numbers on dry, rocky, grassy slopes above the trail at Pohakea Pass in 1949. It has undoubtedly become fully naturalized in these places on Oahu."
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Listed as naturalized] "Pellaea viridis (Forssk.) Prantl Pteridaceae Cultivated Refs: 11 1049-N, 1030-N, 1007-N, 945-N, 919- U, 823-N, 819-N, 617-CE, 514-N, 354- N, 85-N"

401	Produces spines, thorns or burrs	n
	Source(s)	**Notes**

Qsn #	Question	Answer
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	[No evidence] "Rhizome rather stout, creeping, clad when young in brown linear-attenuate paleae c.3mm.long; stipites clustered along rhizome. Stipes stout, erect to procumbent, 5-15 cm. long, densely clad in dark reddish brown, squarrose, bristly paleae mingled with hairs. Rhachis similar to stipes, bearing numerous (up to 30 or more pairs) subopp. to alt. pinnae. Lamina narrow-oblong, coriac., glab. or nearly so, 15-30-(40) × 2-4cm., dull dark green above, paler below; veins hidden. Pinnae patent, narrow-oblong to oblong to suborbicular, shortly stalked or upper sessile (rarely all sessile by widened base), rounded to truncate or subcuneate at base, obtuse but us. apiculate at apex; 1-2 cm. × 5-15 mm.; margins ± crenulate, on barren pinnae often irregularly and very shallowly lobed or subpandurate. Sori becoming coalescent in broad band near margins, not reaching base or apex of pinna, at first ± protected by reflexed margin of pinna, up to c. 1·5 cm. × 2 mm. "

402	Allelopathic	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown

403	Parasitic	n
	Source(s)	**Notes**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	"Rhizome rather stout, creeping, clad when young in brown linear-attenuate paleae c.3mm.long; stipites clustered along rhizome. Stipes stout, erect to procumbent, 5-15 cm. long, densely clad in dark reddish brown, squarrose, bristly paleae mingled with hairs. Rhachis similar to stipes, bearing numerous (up to 30 or more pairs) subopp. to alt. pinnae. Lamina narrowoblong, coriac., glab. or nearly so, 15-30-(40) × 2-4cm., dull dark green above, paler below; veins hidden. Pinnae patent, narrow-oblong to oblong to suborbicular, shortly stalked or upper sessile (rarely all sessile by widened base), rounded to truncate or subcuneate at base, obtuse but us. apiculate at apex; 1-2 cm. × 5-15 mm.; margins ± crenulate, on barren pinnae often irregularly and very shallowly lobed or subpandurate." [Pteridaceae. No evidence]

Qsn #	Question	Answer
404	**Unpalatable to grazing animals**	
	Source(s)	**Notes**
	Missouri Botanical Garden. (2016). Pellaea rotundifolia. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=251861&isprofile=0&force=1. [Accessed 6 Feb 2017]	"Tolerate: Rabbit, Drought"
	Forsyth, D. M., Coomes, D. A., Nugent, G., & Hall, G. M. J. (2002). Diet and diet preferences of introduced ungulates (Order: Artiodactyla) in New Zealand. New Zealand Journal of Zoology, 29 (4): 323-343	[Possibly consumed by deer] "Appendix Indigenous plants recorded in the diet of ungulates in New Zealand, and where available, the preference(s) of ungulates for that species" [Pellaea rotundifolia - 2, Fraser 1991 (n = 140 sika and red deer rumens) and K. W. Fraser pers. comm. (n = 401 sika and red deer rumens)]

405	Toxic to animals	n
	Source(s)	**Notes**
	ASPCA. (2016). Cliff Brake. http://www.aspca.org/pet-care/animal-poison-control/toxic-and-non-toxic-plants/cliff-brake. [Accessed 18 Nov 2016]	"Scientific Name: Pellaea rotundifolia" ... "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
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	n
	Source(s)	**Notes**
	Missouri Botanical Garden. (2016). Pellaea rotundifolia. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=251861&isprofile=0&force=1. [Accessed 18 Nov 2016]	"Problems No serious insect or disease problems."

Qsn #	Question	Answer
407	**Causes allergies or is otherwise toxic to humans**	**n**
	Source(s)	**Notes**
	Dave's Garden. 2017. Roundleaf Fern, Button Fern - Pellaea rotundifolia. http://davesgarden.com/guides/pf/go/54037/. [Accessed 6 Feb 2017]	"Danger: N/A
	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
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	**Creates a fire hazard in natural ecosystems**	**n**
	Source(s)	**Notes**
	Brownsey, P.J. & Smith-Dodsworth, J.C. 1989. New Zealanc Ferns and Allied Plants. David Bateman Ltd, Auckland, New Zealand	"favours dry rocky places in forest, light scrub or sometimes in the open." [No evidence that this fern contributes significantly to fuel load or grows in fire prone habitats]

409	**Is a shade tolerant plant at some stage of its life cycle**	**y**
	Source(s)	**Notes**
	Brownsey, P.J. & Smith-Dodsworth, J.C. 1989. New Zealanc Ferns and Allied Plants. David Bateman Ltd, Auckland, New Zealand	"A popular house plant, cultivated under the name Button fern. Outdoors it likes open or shady conditions in light, rich soil."
	Jones, D. L. 1987. Encyclopedia of Ferns. Timber Press, Portland, OR	"Excellent in a pot or among rocks in a shaded rockery."
	Monrovia. (2016). Button Fern - Pellaea rotundifolia. http://www.monrovia.com/plant-catalog/plants/5157/button-fern/. [Accessed 18 Nov 2016]	"Light Needs: Full shade to filtered sun"
	Missouri Botanical Garden. (2016). Pellaea rotundifolia. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=251861&isprofile=0&force=1. [Accessed 18 Nov 2016]	"Winter hardy to USDA Zones 9-11 where this fern is easily grown in filtered shade with regular water. Some tolerance for both sunny anc shady conditions, but is best grown in part shade."

410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	
	Source(s)	**Notes**
	Jones, D. L. 1987. Encyclopedia of Ferns. Timber Press, Portland, OR	"Likes an acid, humus-rich soil and bright light."
	Brownsey, P.J. & Smith-Dodsworth, J.C. 1989. New Zealanc Ferns and Allied Plants. David Bateman Ltd, Auckland, New Zealand	"Outdoors it likes open or shade conditions in light, rich soil."

Qsn #	Question	Answer
	Shoot Gardening. 2017. Pellaea rotundifolia (Button fern). https://www.shootgardening.co.uk/plant/pellaea-rotundifolia. [Accessed 6 Feb 2017]	"Soil type Clay, Loamy, Sandy Soil drainage Moist but well-drained Soil pH Acid, Neutral"
	Vermeulen, N. 1998. Encyclopedia of House Plants. 2nd Print. Rebo Productions, Lisse, Netherlands	"The soil does not need to be as acid and moist as that for many other ferns. A good compost to use is a mixture of two parts leaf mould to one part grit. Never let the soil dry out completely or leave the plant standing in water."
	Missouri Botanical Garden. (2016). Pellaea rotundifolia. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=251861&isprofile=0&force=1. [Accessed 18 Nov 2016]	"Tolerates clay soils better than most ferns. Tolerant of somewhat dry soils on occasion (likes to dry out between applications of water). Intolerant of overly moist soils."

411	Climbing or smothering growth habit	n
	Source(s)	**Notes**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	"Rhizome rather stout, creeping, clad when young in brown linear-attenuate paleae c.3mm.long; stipites clustered along rhizome. Stipes stout, erect to procumbent, 5-15 cm. long, densely clad in dark reddish brown, squarrose, bristly paleae mingled with hairs. Rhachis similar to stipes, bearing numerous (up to 30 or more pairs) subopp. to alt. pinnae. Lamina narrowoblong, coriac., glab. or nearly so, 15-30-(40) × 2-4cm., dull dark green above, paler below; veins hidden. Pinnae patent, narrow-oblong to oblong to suborbicular, shortly stalked or upper sessile (rarely all sessile by widened base), rounded to truncate or subcuneate at base, obtuse but us. apiculate at apex; 1-2 cm. × 5-15 mm.; margins ± crenulate, on barren pinnae often irregularly and very shallowly lobed or subpandurate."

412	Forms dense thickets	n
	Source(s)	**Notes**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	"Coastal to montane forest and rocky places (these often reduced) throughout." [No evidence]
	Brownsey, P.J. & Smith-Dodsworth, J.C. 1989. New Zealanc Ferns and Allied Plants. David Bateman Ltd, Auckland, New Zealand	No evidence

501	Aquatic	n
	Source(s)	**Notes**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	[Terrestrial fern] "DIST.: Three Kings, N., S., Ch. Coastal to montane forest and rocky places (these often reduced) throughout."

502	Grass	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 6 Feb 2017]	Family: Pteridaceae

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

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	**Notes**
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	"Rhizome rather stout, creeping, clad when young in brown linear-attenuate paleae c.3mm.long; stipites clustered along rhizome. Stipes stout, erect to procumbent, 5-15 cm. long, densely clad in dark reddish brown, squarrose, bristly paleae mingled with hairs. Rhachis similar to stipes, bearing numerous (up to 30 or more pairs) subopp. to alt. pinnae. Lamina narrow-oblong, coriac., glab. or nearly so, 15-30-(40) × 2-4cm., dull dark green above, paler below; veins hidden. Pinnae patent, narrow-oblong to oblong to suborbicular, shortly stalked or upper sessile (rarely all sessile by widened base), rounded to truncate or subcuneate at base, obtuse but us. apiculate at apex; 1-2 cm. × 5-15 mm.; margins ± crenulate, on barren pinnae often irregularly and very shallowly lobed or subpandurate. Sori becoming coalescent in broad band near margins, not reaching base or apex of pinna, at first ± protected by reflexed margin of pinna, up to c. 1·5 cm. × 2 mm."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	New Zealand Plant Conservation Network. (2016). Flora Details - Pellaea rotundifolia. http://www.nzpcn.org.nz/flora_details.aspx?ID=2217. [Accessed 18 Nov 2016]	"Current Conservation Status 2012 - Not Threatened"
	Brownsey, P.J. & Smith-Dodsworth, J.C. 1989. New Zealand Ferns and Allied Plants. David Bateman Ltd, Auckland, New Zealand	"The commonest of the three species."

602	Produces viable seed	y
	Source(s)	**Notes**

Qsn #	Question	Answer
	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	"Button fern is best propagated from spores."
	The Royal Horticultural Society. 2017. Pellaea rotundifolia. https://www.rhs.org.uk/Plants/12410/Pellaea-rotundifolia/Details. [Accessed 6 Feb 2017]	"Propagate by spores sown at 13-18°C when ripe"

603	Hybridizes naturally	
	Source(s)	**Notes**
	Tryon, A. (1957). A Revision of the Fern Genus Pellaea Section Pellaea. Annals of the Missouri Botanical Garden, 44(2), 125-193	"Apomixis, polyploidy and hybridization have influenced speciation in P. glabella, P. sagittata and P. ovata." ... "The choice of the name P. intermedia by Mettenius the species to be a hybrid between P. sagittata and P. ovata" [Unknown. No evidence, but hybridization reported in genus]

604	Self-compatible or apomictic	y
	Source(s)	**Notes**
	Tryon, R. M., & Tryon, A. F. (1982). Ferns and Allied Plants: With Special Reference to Tropical America. Springer-Verlag, New York	"Except for P. ternifolia, these species are apogamous or have apogamous as well as sexual plants (Tryon and Britton, 1958; Tryon, 1968, 1972). Asexual reproduction by spores is evidently a primary reason for the broad ranges. Apogamous gametophytes do not require free water for fertilization and new plants can become established during a short moist period due to rapid germination of the spores and initiation of the sporophyte (Tryon, 1960; Whittier, 1968)."

605	Requires specialist pollinators	n
	Source(s)	**Notes**
	Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly, 25(2): 56-74	"Also assume 'no' for fern, grass, and sedge taxa even if direct evidence is lacking."
	Tryon, R. M., & Tryon, A. F. (1982). Ferns and Allied Plants: With Special Reference to Tropical America. Springer-Verlag, New York	"Except for P. ternifolia, these species are apogamous or have apogamous as well as sexual plants (Tryon and Britton, 1958; Tryon, 1968, 1972). Asexual reproduction by spores is evidently a primary reason for the broad ranges. Apogamous gametophytes do not require free water for fertilization and new plants can become established during a short moist period due to rapid germination of the spores and initiation of the sporophyte (Tryon, 1960; Whittier, 1968)."

606	Reproduction by vegetative fragmentation	y
	Source(s)	**Notes**

Qsn #	Question	Answer
	Missouri Botanical Garden. (2016). Pellaea rotundifolia. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=251861&isprofile=0&force=1. [Accessed 18 Nov 2016]	"Propagate by breaking off pieces of rhizome."
	Allan, H.H. 1982. Flora of New Zealand, Volume I: Indigenous Tracheophyta - Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledons. First electronic edition. Landcare Research, Lincoln, New Zealand	"Rhizome rather stout, creeping, clad when young in brown linear-attenuate paleae c.3mm.long; stipites clustered along rhizome."

607	Minimum generative time (years)	
	Source(s)	**Notes**
	Shoot Gardening. 2017. Pellaea rotundifolia (Button fern). https://www.shootgardening.co.uk/plant/pellaea-rotundifolia. [Accessed 6 Feb 2017]	"5-10 years To maturity" [Refers to maturity in cultivation, but not necessarily first time to spore production]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown. No evidence, but spores may be small enough to adhere to footwear, tools or vehicles.

702	Propagules dispersed intentionally by people	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	"Button fern, so called from its round, button-shaped pinnae, is often sold in garden shops and supermarkets in Hawaii."

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown. No evidence, but spores are small enough that they could possibly be moved in soil or on plants growing in the vicinity

704	Propagules adapted to wind dispersal	y
	Source(s)	**Notes**
	Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly, 25(2): 56-74	"This group includes tumbling plants and fern spores."

705	Propagules water dispersed	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Tryon, R. M., & Tryon, A. F. (1982). Ferns and Allied Plants: With Special Reference to Tropical America. Springer-Verlag, New York	[Unknown. Spores small enough to be transported by water] "Asexual reproduction by spores is evidently a primary reason for the broad ranges. Apogamous gametophytes do not require free water for fertilization and new plants can become established during a short moist period due to rapid germination of the spores and initiation of the sporophyte (Tryon, 1960; Whittier, 1968)."

706	Propagules bird dispersed	n
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	No evidence. Spores likely dispersed by wind and possibly water

707	Propagules dispersed by other animals (externally)	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown. Spores small enough that they might adhere to fur, feathers or feet

708	Propagules survive passage through the gut	n
	Source(s)	**Notes**
	Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly, 25(2): 56-74	"Answer 'no' where the taxon is unlikely to be eaten by animals or if seeds are not viable following passage through the gut."

801	Prolific seed production (>1000/m2)	y
	Source(s)	**Notes**
	Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly, 25(2): 56-74	"Assume 'yes' for fern taxa unless contradictory evidence exists."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown

803	Well controlled by herbicides	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	

Qsn #	Question	Answer
	Source(s)	**Notes**
	The Royal Horticultural Society. 2017. Pellaea rotundifolia. https://www.rhs.org.uk/Plants/12410/Pellaea-rotundifolia/Details. [Accessed 6 Feb 2017]	"Pruning: Remove old leaves as they die down for the winter "
	WRA Specialist. 2016. Personal Communication	Unknown

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
• Grows in subtropical climates
• Shade-tolerant
• Reproduces by spores and rhizomes
• Apogamous (can reproduce without fertilization)
• Intentionally planted by people
• Spores dispersed by wind and possibly water
• Prolific spore production (presumably)

Low Risk Traits
• No reports of invasiveness or naturalization to date
• Unarmed (no spines, thorns, or burrs)
• May be palatable to deer
• Non-toxic
• Ornamental
• Not reported to spread vegetatively

Second Screening Results for Herbs or Low Stature Shrubby Life Forms

(A) Reported as a weed of cultivated lands? No
Outcome = Accept (Low Risk)