

Taxon: <i>Banksia sphaerocarpa</i> R. Br.	Family: Proteaceae
Common Name(s): fox banksia round-fruit Banksia	Synonym(s): <i>Sirmuelleria sphaerocarpa</i> (R.Br.)

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 2 Nov 2016
WRA Score: 1.0	Designation: EVALUATE	Rating: Evaluate

Keywords: Ornamental Shrub, Mediterranean Climate, Lignotuber, Serotinous, 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	n
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	n
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)	y
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		
409	Is a shade tolerant plant at some stage of its life cycle		

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	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	y
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	n
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	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 ²)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	y
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
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	[No evidence of domestication] "Fire-tolerant, sprouting from the lignotuber. Follicles usually opening with fire. The lateral shoulders of the follicle valves assist to distinguish this species. Among the Abietinae probably most closely related to <i>B. micrantha</i> which has much smaller flowers and large flattened follicles, and to <i>B. grossa</i> which has coarser leaves and flowers and large velvety follicles without shoulders on the valves. There are three varieties."

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
	Australian Native Plants Nursery. (2016). <i>Banksia sphaerocarpa</i> . http://www.australianplants.com/plants.aspx?id=1207 . [Accessed 31 Oct 2016]	"Origin: Mediterranean Climate"
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Widespread in W.A. between Eneabba, Albany and Hyden."

202	Quality of climate match data	High
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	

Qsn #	Question	Answer
203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Gardening With Angus. (2016). <i>Banksia sphaerocarpa</i> – Fox <i>Banksia</i> . http://www.gardeningwithangus.com.au/banksia-sphaerocarpa-fox-banksia/ . [Accessed 1 Nov 2016]	"Climate Zone: Warm temperate, Cool temperate, Mediterranean, Cool, Semi-arid"
	Plant This. (2016). <i>Banksia sphaerocarpa</i> . http://www.plantthis.com.au/plant-information.asp?gardener=9685 . [Accessed 1 Nov 2016]	"Hardiness zones: 9-10"

204	Native or naturalized in regions with tropical or subtropical climates	n
	Source(s)	Notes
	Australian Native Plants Nursery. (2016). <i>Banksia sphaerocarpa</i> . http://www.australianplants.com/plants.aspx?id=1207 . [Accessed 1 Nov 2016]	"Origin: Mediterranean Climate"
	Australian Biological Resources Study. (1999). <i>Flora of Australia</i> Volume 17B, Proteaceae 3, <i>Hakea</i> to <i>Dryandra</i> . CSIRO Publishing, Melbourne	"Widespread in W.A. between Eneabba, Albany and Hyden"

205	Does the species have a history of repeated introductions outside its natural range?	n
	Source(s)	Notes
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	"Table S4. Raw data of all introduced, naturalized and invasive species and the fourteen traits that were measured." [Introduced to South Africa]

301	Naturalized beyond native range	n
	Source(s)	Notes
	Randall, R.P. 2012. <i>A Global Compendium of Weeds</i> . 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence
	Wagner, W.L., Herbst, D.R. & Lorence, D.H. 2016. <i>Flora of the Hawaiian Islands</i> . Smithsonian Institution, Washington, D.C. http://botany.si.edu/ . [Accessed 1 Nov 2016]	To date, <i>Banksia integrifolia</i> is the only species naturalized in the Hawaiian Islands [East Maui]

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. 2012. <i>A Global Compendium of Weeds</i> . 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

303	Agricultural/forestry/horticultural weed	n
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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	y
	Source(s)	Notes
	Williams, P.A. 2008. Biological Success and Weediness of Some Terrestrial Weeds Not Presently in the Northland Regional Council's RPMS. Landcare Research Contract Report: LC0708/079/. Landcare Research, New Zealand	"Coastal banksia (<i>Banksia integrifolia</i>) Widespread coast weed in NZ. Not known as a weed elsewhere except in Western Australia where it has been introduced outside its native range shades out native biota and competes with native species in vegetation succession."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	[No evidence] "Shrub to 2 m tall, with lignotuber. Stems pubescent, glabrescent, usually orange-brown. Leaves: petiole 2–3 mm long; lamina stiff, narrowly linear, 2.5–10 cm long, 1–1.5 (–2) mm wide, pungent, dark green or slightly glaucous; upper surface hirsute, glabrescent. Inflorescence 3–6 cm long; involucre bracts tomentose with glabrous apices."

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown. No evidence

403	Parasitic	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Shrub to 2 m tall, with lignotuber." [Proteaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown

405	Toxic to animals	n
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Qsn #	Question	Answer
	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
	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	
	Source(s)	Notes
	Liber, C. & Collins, K. (2009). Banksia Profile #13: Banksia sphaerocarpa. Issue 17. Banksia Study Group Newsletter 10(1): 1-8	"Like most Western Australian banksia species, B. sphaerocarpa has been shown to be highly sensitive to dieback from Phytophthora cinnamomi."

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
	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	
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Fire-tolerant, sprouting from the lignotuber." [Possibly. Occurs in fire prone habitats and adapted to recover from fire]

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	Australian Native Plants Nursery. (2016). Banksia sphaerocarpa. http://www.australianplants.com/plants.aspx?id=1207 . [Accessed 2 Nov 2016]	"Exposure: Full Sun to Partial Shade"
	Australian Native Plant Society. (2016). Banksia sphaerocarpa. http://anpsa.org.au/b-sph.html . [Accessed 1 Nov 2016]	"It requires sandy, well drained soils in full sun or partial shade."
	Gardening With Angus. (2016). Banksia sphaerocarpa – Fox Banksia. http://www.gardeningwithangus.com.au/banksia-sphaerocarpa-fox-banksia/ . [Accessed 2 Nov 2016]	"They need free draining, ideally sandy, soils and a sunny aspect."

Qsn #	Question	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	Source(s)	Notes
	Liber, C. & Collins, K. (2009). Banksia Profile #13: Banksia sphaerocarpa. Issue 17. Banksia Study Group Newsletter 10(1): 1-8	"It is widely distributed to the southwest of Western Australia, growing exclusively in sandy soils."
	Australian Native Plant Society. (2016). Banksia sphaerocarpa. http://anpsa.org.au/b-sph.html . [Accessed 2 Nov 2016]	"It requires sandy, well drained soils in full sun or partial shade."
	Gardening With Angus. (2016). Banksia sphaerocarpa – Fox Banksia. http://www.gardeningwithangus.com.au/banksia-sphaerocarpa-fox-banksia/ . [Accessed 1 Nov 2016]	"Ph Level: Acid, Neutral, Alkaline Soil Type: Sandy, Sandy loam"
	Plant This. (2016). Banksia sphaerocarpa. http://www.plantthis.com.au/plant-information.asp?gardener=9685 . [Accessed 1 Nov 2016]	"Soil Moisture: dry for extended periods to dry between watering Soil: ordinary soil, enriched soil, mildly acidic to mildly alkaline"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Shrub to 2 m tall, with lignotuber. Stems pubescent, glabrescent, usually orange-brown. Leaves: petiole 2–3 mm long; lamina stiff, narrowly linear, 2.5–10 cm long, 1–1.5 (–2) mm wide, pungent, dark green or slightly glaucous; upper surface hirsute, glabrescent. Inflorescence 3–6 cm long; involucre bracts tomentose with glabrous apices."

412	Forms dense thickets	n
	Source(s)	Notes
	Liber, C. & Collins, K. (2009). Banksia Profile #13: Banksia sphaerocarpa. Issue 17. Banksia Study Group Newsletter 10(1): 1-8	"It is usually the dominant plant in scrubland or low woodland."
	Corrick, M.G. & Fuhrer, B. (2009). Wildflowers of Southern Western Australia. Third Edition. Rosenberg Publishing, Kenthurst, Australia	"it occurs in scattered inland and near-coastal areas of regions 16, 17, 18, 19 and 21."
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	No evidence of thicket formation

501	Aquatic	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	[Terrestrial] "Shrub to 2 m tall, with lignotuber. ... Widespread in W.A. between Eneabba, Albany and Hyden."

502	Grass	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	Proteaceae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	Proteaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Shrub to 2 m tall, with lignotuber." ... "Fire-tolerant, sprouting from the lignotuber."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Australian Native Plant Society. (2016). <i>Banksia sphaerocarpa</i> . http://anpsa.org.au/b-sph.html . [Accessed 1 Nov 2016]	"Not considered to be at risk in the wild at the species level but var. <i>dolichostyla</i> is listed as vulnerable under the EPBC Act* (ie. facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with prescribed criteria) and is classified as 2E under the ROTAP * system."
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Widespread in W.A. between Eneabba, Albany and Hyden."

602	Produces viable seed	y
	Source(s)	Notes
	Australian Native Plant Society. (2016). <i>Banksia sphaerocarpa</i> . http://anpsa.org.au/b-sph.html . [Accessed 1 Nov 2016]	"This species develops a lignotuber and can regenerate by vegetative means from the lignotuber if the upper parts of the plant are destroyed by fire. It can also regenerate from seed." ... "Propagation from seed is reliable without pre-treatment and cuttings also succeed but may be slow to strike and success rate may be well below 100%."

603	Hybridizes naturally	
	Source(s)	Notes

Qsn #	Question	Answer
	Renshaw, A. (2005). The reproductive biology of four <i>Banksia</i> L. f. species with contrasting life histories. PhD Dissertation. University of Western Sydney	[Unknown. Hybridization documented in genus] "George (1981) considered that significant differences in the morphology of flowers and/or fruits were necessary for species distinction. <i>Banksia cunninghamii</i> Sieber ex Reichb and <i>Banksia collina</i> R. Br. were reduced to varieties of <i>B. spinulosa</i> by George in 1981 for this reason. Four varieties of <i>Banksia spinulosa</i> are currently formally recognised (George, 1988). Varietal distinction is given to <i>Banksia spinulosa</i> var. <i>cunninghamii</i> because it is non-lignotuberos, the other three varieties are lignotuberos. <i>Banksia ericifolia</i> and <i>B. spinulosa</i> are closely related species belonging to the series <i>Spicigerae</i> and several presumed hybrids have been reported (Table 7.2). Interestingly George (1981) noted that no intermediates between <i>B. spinulosa</i> var. <i>cunninghamii</i> and var. <i>spinulosa</i> (nonlignotuberos X lignotuberos) have been reported, even though they occur as mixed populations. Hybrids between <i>B. ericifolia</i> subsp. <i>ericifolia</i> and <i>B. spinulosa</i> var <i>spinulosa</i> have been reported (lignotuberos X nonlignotuberos). The possible link between hybridisation and the observed variation (resprouting <i>B. ericifolia</i>) will be discussed."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Llorens, T. M., Byrne, M., Yates, C. J., Nistelberger, H. M., & Coates, D. J. (2012). Evaluating the influence of different aspects of habitat fragmentation on mating patterns and pollen dispersal in the bird-pollinated <i>Banksia sphaerocarpa</i> var. <i>caesia</i> . <i>Molecular Ecology</i> , 21(2), 314-328	[Capable of selfing] "The large population had a much larger neighbourhood size and lower selfing rate, maternal pollen pool differentiation and within-plot mean pollen dispersal distance than the small populations. Outcrossing was consistently high and ranged from 85.7% ± 2.6 to 98.5% ± 0.9, and mating patterns suggested nearest-neighbour pollination. Pollen immigration into small populations ranged from 2.8% ± 1.8 to 16.5% ± 3.2."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Liber, C. & Collins, K. (2009). <i>Banksia</i> Profile #13: <i>Banksia sphaerocarpa</i> . Issue 17. <i>Banksia Study Group Newsletter</i> 10(1): 1-8	"It is pollinated by, and is a food source for, birds, mammals, and insects." ... "Various animals, including mammals, birds, and insects such as bees, wasps, ants and beetles, have been recorded visiting <i>Banksia sphaerocarpa</i> inflorescences, including the colletid bee species <i>Hylaeus sanguinipictus</i> . Botanist Stephen Hopper found pollen of <i>B. sphaerocarpa</i> on New Holland Honeyeaters (<i>Phylidonyris novaehollandiae</i>) and Honey Possums (<i>Tarsipes rostratus</i>) at Cheyne Beach in a field study published in 1980."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Australian Native Plant Society. (2016). <i>Banksia sphaerocarpa</i> . http://anpsa.org.au/b-sph.html . [Accessed 1 Nov 2016]	"This species develops a lignotuber and can regenerate by vegetative means from the lignotuber if the upper parts of the plant are destroyed by fire. It can also regenerate from seed."

607	Minimum generative time (years)	

Qsn #	Question	Answer
	Source(s)	Notes
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	Time to maturity unknown
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Seed cuneate, 20–26 mm long; seed body cuneate, 10–14 mm long, 5–13 mm wide, smooth." [Serotinous species. Seeds stored in canopy until released by fire. Seeds lack means of external attachment]
702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Nindethana Australian Seeds. (2016). <i>Banksia sphaerocarpa</i> . http://www.nindethana.net.au/Product-Detail.aspx?p=3776 . [Accessed 1 Nov 2016]	Seeds sold online
703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Seed cuneate, 20–26 mm long; seed body cuneate, 10–14 mm long, 5–13 mm wide, smooth." [No evidence. Serotinous species. Seeds stored in canopy until released by fire.]
704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	"Proteaceae are predominantly wind dispersed (Table S4)," ... "Table S4. <i>Banksia sphaerocarpa</i> - Dispersal = Wind]
705	Propagules water dispersed	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Seed cuneate, 20–26 mm long; seed body cuneate, 10–14 mm long, 5–13 mm wide, smooth." [Serotinous, wind-dispersed seeds. Does not occur in riparian areas]

Qsn #	Question	Answer
706	Propagules bird dispersed	n
	Source(s)	Notes
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	"Proteaceae are predominantly wind dispersed (Table S4)," ... "Table S4. <i>Banksia sphaerocarpa</i> - Dispersal = Wind]
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Seed cuneate, 20–26 mm long; seed body cuneate, 10–14 mm long, 5–13 mm wide, smooth."
707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Seed cuneate, 20–26 mm long; seed body cuneate, 10–14 mm long, 5–13 mm wide, smooth." [No evidence. Serotinous species. Seeds lack means of external attachment]
708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Moodley, D. (2013). Determinants of introduction and invasion success for Proteaceae. MSc Thesis. Stellenbosch University, Stellenbosch, South Africa	"Proteaceae are predominantly wind dispersed (Table S4), therefore small seed size is favourable." [Identified as a wind-dispersed species. No evidence that seeds are consumed or internally dispersed]
801	Prolific seed production (>1000/m²)	
	Source(s)	Notes
	Australian Biological Resources Study. (1999). Flora of Australia Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Shrub to 2 m tall, with lignotuber" ... "Seed cuneate, 20–26 mm long; seed body cuneate, 10–14 mm long, 5–13 mm wide, smooth." [Seed densities unknown]
802	Evidence that a persistent propagule bank is formed (>1 yr)	y
	Source(s)	Notes
	Llorens, T. M., Byrne, M., Yates, C. J., Nistelberger, H. M., & Coates, D. J. (2012). Evaluating the influence of different aspects of habitat fragmentation on mating patterns and pollen dispersal in the bird-pollinated <i>Banksia sphaerocarpa</i> var. <i>caesia</i> . <i>Molecular Ecology</i> , 21(2), 314-328	"The woody infructescences are serotinous, seeds being retained within the follicles for several years and only released following fire." [Forms a canopy seed bank]
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	y

Qsn #	Question	Answer
	Source(s)	Notes
	Australian Native Plants Nursery. (2016). <i>Banksia sphaerocarpa</i> . http://www.australianplants.com/plants.aspx?id=1207 . [Accessed 1 Nov 2016]	" It is moderately frost hardy and will tolerate hard pruning once established as it can send up new branches from the lignotuber."
	Australian Biological Resources Study. (1999). <i>Flora of Australia</i> Volume 17B, Proteaceae 3, Hakea to Dryandra. CSIRO Publishing, Melbourne	"Shrub to 2 m tall, with lignotuber." ... "Fire-tolerant, sprouting from the lignotuber."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2016. Personal Communication	Unknown. No evidence from the Hawaiian Islands

Summary of Risk Traits:

High Risk / Undesirable Traits

- Other *Banksia* species have become invasive
- Fire-tolerant, sprouting from the lignotuber
- Reproduces by seeds
- Self-compatible
- Seeds dispersed by wind & intentionally by people
- Forms canopy stored seed bank (serotiny)
- Tolerates fire and heavy pruning

Low Risk Traits

- No reports of invasiveness or naturalization, but limited evidence of widespread introduction outside native range
- Unarmed (no spines, thorns or burrs)
- Non-toxic
- Ornamental
- Not reported to spread vegetatively
- Seeds relatively large & unlikely to be inadvertently dispersed