

Australia/New Zealand Weed Risk Assessment adapted for United States.

Data used for analysis published in: Gordon, D.R. and C.A. Gantz. 2008. Potential impacts on the horticultural industry of screening new plants for invasiveness. Conservation Letters 1: 227-235. Available at: <http://www3.interscience.wiley.com/cgi-bin/fulltext/121448369/PDFSTART>

<i>Combretum bracteosum</i>			
Question number	Question	Answer	Score
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to U.S. climates (USDA hardiness zones; 0-low, 1-intermediate, 2-high)	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	n	0
2.04	Native or naturalized in regions with an average of 11-60 inches of annual precipitation	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	n	-2
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	n	0
3.04	Environmental weed	n	0
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	y	1
4.02	Allelopathic		
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals		
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens		
4.07	Causes allergies or is otherwise toxic to humans	?	
4.08	Creates a fire hazard in natural ecosystems		
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.1	Grows on one or more of the following soil types: alfisols, entisols, or mollisols	y	1
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	n	0

5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators		
6.06	Reproduction by vegetative fragmentation	y	1
6.07	Minimum generative time (years)	3	0
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed		
7.06	Propagules bird dispersed		
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)		
8.01	Prolific seed production		
8.02	Evidence that a persistent propagule bank is formed (>1 yr)		
8.03	Well controlled by herbicides		
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in U.S.		
Total Score			4

Outcome	Accept*
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*Used secondary screen from: Daehler, C. C., J.L. Denslow, S. Ansari, and H. Kuo. 2004. A risk assessment system for screening out harmful invasive pest plants from Hawaii's and other Pacific islands. *Conserv. Biol.* 18: 360-368.

section	# questions answered	satisfy minimum?
A	11	Yes
B	7	Yes
C	12	Yes
total	30	yes

Data collected 2008

Question number	Reference	Source data
1.01		used horticulturally, but no evidence of significant modification
1.02		
1.03		
2.01	1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20Ign d.tif). 2. Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers. 3. Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm).	1. Global hardiness zones 9-10. 2. Its distribution lies within the subtropics. 3. "Its natural habitat is generally frost-free".
2.02		
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers.	1. 1-2 climatic regions. 2. Very limited distribution along the coast of southeastern South Africa.
2.04	Atlapedia Online (http://www.atlapedia.com/online/countries/southafr.htm).	Average annual precipitation varies from 400 mm (16 inches) in the east to less than 50 mm (2 inches) in the northwest coastal regions. Average annual precipitation in Cape Town is 510 mm (20 inches)
2.05	1. Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm). 2. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	1. "The spectacular blaze of flowers makes it a sought-after garden plant". 2. Used horticulturally.

3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05	Holm, L, JV Pancho, JP Herberger, and DL Plucknett (1979) A Geographical Atlas of World Weeds. John Wiley and Sons, New York.	<i>C. apiculatum</i> and <i>C. hereroense</i> are considered principal weeds of agriculture in Zimbabwe.
4.01	Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm).	"Some of the stems are armed with curved spines."
4.02		
4.03	Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers.	no description of parasitism
4.04		
4.05	Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm).	no evidence
4.06		
4.07	1. Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm). 2. Watt, JM and Breyer-Brandwijk, MG (1962) The Medicinal and Poisonous Plants of Southern and Eastern Africa. E. & S. Livingstone Ltd., Edinburgh and London.	1. "The roasted nuts are apparently eaten." BUT "One reference, Watt & Breyer-Brandwijk (1932), report that the plant does contain a toxic substance, saponin." 2. "Used medicinally for the relief of hiccup but, although the nut is palatable, it usually produces persistent violent hiccups" and "Greshoff regards the plant as toxic and containing saponin".
4.08		
4.09	GardeningEden.co.za (http://www.gardeningedden.co.za/plants-combretum-bracteosum.html).	Full sun.
4.1	1. USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html). 2. Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers.	1. Alfisols occur predominantly in this region. 2. occurs in sand

4.11	1. Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers. 2. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	1. "A shrub with a tendency to scramble, or a small tree up to 8 m in height...Long slender vegetative branches clamber into the surrounding trees using grappling hooks up to 1.5 cm long". 2. "Small tree, shrub or climber to 8 m".
4.12	Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers.	"A shrub with a tendency to scramble, or a small tree up to 8 m in height...Long slender vegetative branches clamber into the surrounding trees using grappling hooks up to 1.5 cm long". [Vegetative branches are slender, so not likely to form dense thickets.]
5.01		terrestrial
5.02	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?418924).	Combretaceae
5.03	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?418924).	Combretaceae
5.04	Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers.	Woody shrub, small tree, or climber.
6.01		no evidence
6.02	1. Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm). 2. Dalling KJ and van Staden J (1999) Germination requirements of <i>Combretum bracteosum</i> seeds. South African Journal of Botany 65(1): 83-85.	1. "The hiccup nut may be grown from seed." 2. Seeds germinate.
6.03		
6.04		
6.05		
6.06	Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm)	Can be grown from "lifted, rooted suckers from an established plant".

	m).	
6.07	Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm).	"Flowering should occur in about 3 years".
7.01		
7.02	1. Aubrey, A (2004) <i>Combretum bracteosum</i> (Hochst.) Brandis. PlantzAfrica.com (http://www.plantzafrica.com/plantcd/combretbrac.htm). 2. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	1. "The spectacular blaze of flowers makes it a sought-after garden plant". 2. Used horticulturally.
7.03		no evidence
7.04	Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers.	Fruit a round nut without wings, about 2 cm in diameter. [no evidence of adaptations for wind dispersal]
7.05		
7.06		
7.07	Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers.	Fruit a round nut without wings, about 2 cm in diameter. [no adaptations for external dispersal]
7.08		
8.01		
8.02		
8.03		
8.04		
8.05		