

Taxon: *Osteospermum ecklonis* (DC.) Norl.

Family: Asteraceae

Common Name(s): blue-and-white daisy bush
Cape marguerite
Sundays River daisy
Vanstaden's river daisy
white daisy bush

Synonym(s): *Dimorphotheca ecklonis* DC.

Assessor: Chuck Chimera

Status: Assessor Approved

End Date: 27 Oct 2017

WRA Score: 11.0

Designation: H(HPWRA)

Rating: High Risk

Keywords: Perennial Herb, Ornamental, Environmental Weed, Toxic, 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	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		
303	Agricultural/forestry/horticultural weed		
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	y
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	y
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		

Qsn #	Question	Answer Option	Answer
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		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	y
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	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
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	y
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/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides	y=-1, n=1	y
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
	Park Seed. 2017. Asti™ White Osteospermum Seeds. https://parkseed.com/asti-white-osteospermum-flower-seeds/p/51526-PK-P1/ . [Accessed 26 Oct 2017]	[A cultivar with no evidence of selection that would reduce competitive ability or potential invasiveness] "Winner of a 2008 All-America Selection, Asti™ White is the first separate color for African Daisies available from seed. A very heat- and drought-tolerant variety, Asti™ is so long blooming that you may just have to move these plants from the cutting garden to front-and center in the annual bed! These spanking-white blooms are so neat and tidy, their closely-spaced petals surrounding a handsome dark center. The flowers reach about 2 inches wide, with petals held straight out on long, wiry stems. Perfect for cutting, these blooms also look good on the plant, thanks to a more compact, tight habit. Expect the flowers to keep coming from early summer all the way into fall, especially if you cut or deadhead the blooms promptly to encourage new bud formation."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2017. 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
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 25 Oct 2017]	"Native: Africa Southern Africa: South Africa - Eastern Cape"

202	Quality of climate match data	High
	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 25 Oct 2017]	

203	Broad climate suitability (environmental versatility)	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Dave's Garden. 2017. <i>Osteospermum</i> Species, African Daisy, Cape Daisy - <i>Osteospermum ecklonis</i> . https://davesgarden.com/guides/pf/go/54289/ . [Accessed 26 Oct 2017]	"Hardiness: USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)" [Tolerates 3 hardiness zones, in contrast to Shoot.com website's reports]
	Shoot Gardening. 2017. <i>Osteospermum ecklonis</i> Asti Series (African daisy 'Asti Mix'). https://www.shootgardening.co.uk/ . [Accessed 26 Oct 2017]	[Able to grow in 5 hardiness zones] "USDA zones - Zone 1"0, Zone 9, Zone 8, Zone 7, Zone 6"

204	Native or naturalized in regions with tropical or subtropical climates	y
	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 26 Oct 2017]	"Native: Africa Southern Africa: South Africa - Eastern Cape" [From a region with a Mediterranean to subtropical climate]
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	" <i>Osteospermum ecklonis</i> ... Preferred Climate/s: Dryland, Mediterranean, Subtropical, Tropical"
	SA-Venues.com. 2017. Eastern Cape Weather and Climate. https://www.sa-venues.com/weather/easterncape.htm . [Accessed 26 Oct 2017]	"The coastal area of the Eastern Cape Province lies directly between the subtropical conditions of KwaZulu Natal and the Mediterranean conditions of the Western Cape, while its inland area is bisected by the great escarpment resulting in the southern reaches defined by a series of rivers and corresponding wetland fauna and flora, while the northern areas are those of the altitudinous plains of the Plateau and great Karoo. These topographical differences are what cause the climatic differences and conditions experienced by the towns and cities within these areas. "

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Dave's Garden. 2017. <i>Osteospermum</i> Species, African Daisy, Cape Daisy - <i>Osteospermum ecklonis</i> . https://davesgarden.com/guides/pf/go/54289/ . [Accessed 26 Oct 2017]	"Regional This plant has been said to grow in the following regions: Chowchilla, California Citrus Heights, California Monterey, California Littleton, Colorado Daytona Beach, Florida Fort Myers, Florida Keystone Heights, Florida Zachary, Louisiana Cottage Grove, Minnesota Billings, Montana Kure Beach, North Carolina Wilmington, North Carolina Salem, Oregon Summerville, South Carolina Salt Lake City, Utah"

301	Naturalized beyond native range	y
	Source(s)	Notes

Qsn #	Question	Answer
	Aymerich, P. (2016). Algunas citas de plantas alóctonas de origen ornamental en la zona del Penedès (Cataluña). <i>Bouteloua</i> , 24, 78-92	"ABSTRACT: We provide data about some garden escapes that are found as casual or naturalised alien species in the coastal region between Barcelona and Tarragona. <i>Aeonium haworthii</i> Webb & Berthel. and <i>Kalanchoe fedtschenkoi</i> Raym. Hamet & H. Perrier (Crassulaceae), <i>Osteospermum ecklonis</i> DC. (Asteraceae) and the rufida morph of <i>Opuntia mycrodasys</i> (Lehm.) Pfeiff. (Cactaceae).are reported for the first time in Catalonia. It is also interesting the observation of a little population of <i>Abutilon grandifolium</i> (Willd.) Sweet, a Malvaceae with very few records in Europe."
	Given, D. R. 1984. Checklist of dicotyledons naturalised in New Zealand 16. Compositae—tribes Vernonieae, Eupatorieae, Astereae, Inuleae, Heliantheae, Tageteae, Calenduleae, and Arctoteae. <i>New Zealand Journal of Botany</i> , 22(2), 183-190	"DISTRIBUTION: Rangitoto I., Auckland; Wanganui, Wellington; NW Nelson; Nelson city; Amberley, Canterbury; cliffs, scrub, and wasteland."
	González-Martínez, X. I. (2015). Contribución al conocimiento de la flora alóctona de Galicia. <i>Botanica Complutensis</i> 39: 79-85	"Information on 12 exotic plants of diverse interest for the Galician flora are presented. All of them were collected in Ribeira council (SW of the A Coruña province). The total includes 8 novelties at a regional level (<i>Aeonium haworthii</i> , <i>Aloe mitriformis</i> , <i>Brugmansia × candida</i> , <i>Nephrolepis cordifolia</i> , <i>Osteospermum ecklonis</i> , <i>Pelargonium capitatum</i> , <i>Sedum mexicanum</i> , <i>Sparaxis tricolor</i>), and 2 provincial novelties. In addition, information on two taxa hardly mentioned in the literature on Galician vascular flora is also included. All the cited specimens are deposited at the SANT Herbarium."
	Barrett, R. & Tay, E. P. 2016. <i>Perth Plants: A Field Guide to the Bushland and Coastal Flora of Kings Park and Bold Park</i> . CSIRO Publishing, Clayton, Australia	"Naturalised around Perth and some regional settlements. Native to South Africa. Naturalised from garden waste in Bold Park and in Kings Park below the botanic garden and near Park Avenue."
	Sáez, L., Serapio, J., Gómez-Bellver, C., Ardenghi, N. M., Guillot, D., & Rita, J. (2016). New records in vascular plants alien to the Balearic Islands. <i>Orsis</i> , 30: 101-131	"New for the Balearic Islands. Casual. It is a popular garden plant native to South Africa. This species is regarded as a weed in Mediterranean-climate regions (Mediterranean basin, North America and Australia). In the Iberian Peninsula <i>O. ecklonis</i> has been reported as naturalized in Galicia, Valencian Community, Galicia and Catalonia (González-Martínez, 2015; Aymerich, 2016)."
	Brusati, E., Johnson, D., & DiTomaso, J. (2014). Predicting invasive plants in California. <i>California Agriculture</i> , 68(3), 89-95	"TABLE 4. Plants naturalized in California and also sold as ornamentals in the state* [Includes <i>Osteospermum ecklonis</i>] ... "Species introduced as ornamentals or forage species that have escaped cultivation in California include, left, Mexican daisy (<i>Erigeron karvinskianus</i>), Japanese honeysuckle (<i>Lonicera japonica</i>), buffelgrass (<i>Pennisetum ciliare</i>) and African daisy (<i>Osteospermum ecklonis</i>). While these species are not yet major problems in the state, some have become more serious invasive plants in other regions of the country."
	Queensland Government. (2017). <i>Weeds of Australia</i> . <i>Dimorphotheca ecklonis</i> . http://keyserver.lucidcentral.org . [Accessed 25 Oct 2017]	"This species is becoming widely naturalised in eastern Australia (i.e. in south-eastern Queensland and some parts of eastern New South Wales) and in south-western Western Australia. Also naturalised overseas in south-western USA (i.e. California)."
	Guillot Ortiz, D. (2003). Apuntes corológicos sobre neófitos de la flora valenciana. <i>Flora Montiberica</i> 23: 13-17	"[Naturalized in Spain] "SUMMARY: In this article we will talk about new cultivated taxa naturalized in Valencia: <i>Nephrolepis exaltata</i> Schott, <i>Vinca major</i> var. <i>variegata</i> Loud., <i>Hedera canariensis</i> Willd., <i>H. canariensis</i> var. <i>Gloria de Marengo</i> , <i>Dahlia pinnata</i> var. <i>Bambi Yellow</i> , <i>Kleinia tomentosa</i> Haw., <i>Osteospermum ecklonis</i> var. <i>Whyte Daisy</i> , ..." ... "Osteospermum ecklonis Norl. cultivar. White Daisy *VALENCIA: 30SYJ2094, Náquera, pinada cercana a la urbanización Monteamor, 300 m, 12-X-2001, D. Guillot."

Qsn #	Question	Answer
302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	A garden escape with negative environmental impacts reported from Australia
303	Agricultural/forestry/horticultural weed	
	Source(s)	Notes
	Fuller, T.C. & McClintock, E.M. 1986. Poisonous plants of California: Issue 53 of California natural history guides. University of California Press, Berkeley and Los Angeles, CA	[Could become a weed of agriculture and ranching if it spreads into pastures] "Poisoning of livestock from <i>Osteospermum ecklonis</i> has been reported from South Africa and Australia. Livestock should not have access to this ornamental shrub or its prunings."
304	Environmental weed	y
	Source(s)	Notes
	Southern Councils Group. 2012. Environmental Weeds - African Daisy. http://archive.southerncouncils.nsw.gov.au/ . [Accessed 26 Oct 2017]	"African daisy (<i>Osteospermum ecklonis</i>) is a very popular garden plant that has emerged as one of the most serious environmental weeds along the Far South Coast." ... "African daisy invades a wide range of habitats, particularly beaches, dunes and dry forest. It is very widespread around all coastal communities and is rapidly invading adjacent bushland where it can form a dense understorey excluding native species."
Queensland Government. (2017). Weeds of Australia. <i>Dimorphantheca ecklonis</i> . http://keyserver.lucidcentral.org . [Accessed 25 Oct 2017]	[No negative impacts specified] "African daisy (<i>Dimorphantheca ecklonis</i>) is regarded as an emerging environmental weed in New South Wales and Western Australia, and as a potential environmental weed or "sleeping weed" in other parts of southern Australia."	
305	Congeneric weed	y
	Source(s)	Notes
	T.E.R.:R.A.I.N. 2017. <i>Osteospermum fruticosum</i> (Trailing African Daisy). http://www.terrain.net.nz/ . [Accessed 26 Oct 2017]	" <i>Osteospermum fruticosum</i> is now classified as a weed in New Zealand. As an escapee plant it inhabits coastal areas, banks, clay, cliffs, wasteland."
401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphantheca ecklonis</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphantheca-ecklonis . [Accessed 25 Oct 2017]	[No evidence] " <i>Dimorphantheca ecklonis</i> is a perennial plant of up to 1 m tall and as much in diameter, erect to decumbent. It can get woody at the base. The leaves are alternately arranged, sessile, simple, elliptic and slightly succulent, and the margins are entire to conspicuously dentate, crowded at the ends of the branches. The lower branches are quite nude."
402	Allelopathic	

Qsn #	Question	Answer
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown

403	Parasitic	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 25 Oct 2017]	Family: Asteraceae (alt.Compositae) Subfamily: Asteroideae Tribe: Calenduleae [No evidence]

404	Unpalatable to grazing animals	y
	Source(s)	Notes
	Cornell University. 2017. <i>Osteospermum</i> . http://www.gardening.cornell.edu/homegardening/scene82d7.html . [Accessed 26 Oct 2017]	"Special characteristics: deer resistant " [Toxicity may deter browsing]

405	Toxic to animals	y
	Source(s)	Notes
	Fuller, T.C. & McClintock, E.M. 1986. Poisonous plants of California: Issue 53 of California natural history guides. University of California Press, Berkeley and Los Angeles, CA	" <i>Osteospermum ecklonis</i> ... Toxic part: Entire plant (stems, leaves, and flowers), most toxin in the leaves. ... Symptoms: Labored breathing, tremors and muscular contractions, sometimes followed by convulsions, paralysis, and loss of consciousness. May be fatal. ... Poisoning of livestock from <i>Osteospermum ecklonis</i> has been reported from South Africa and Australia. Livestock should not have access to this ornamental shrub or its prunings."
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 25 Oct 2017]	"The Cape marguerite contains hydrocyanic acid and is poisonous to cattle."

406	Host for recognized pests and pathogens	y
	Source(s)	Notes
	Cornell University. 2017. <i>Osteospermum</i> . http://www.gardening.cornell.edu/homegardening/scene82d7.html . [Accessed 26 Oct 2017]	"Pests: Aphids Diseases: Foliar fungal diseases "

407	Causes allergies or is otherwise toxic to humans	y
	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	"Poisonous to cattle, hydrocyanic acid" [Possibly, although unlikely to be ingested by humans]

408	Creates a fire hazard in natural ecosystems	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 27 Oct 2017]	" <i>Dimorphotheca ecklonis</i> is a perennial plant of up to 1 m tall and as much in diameter, erect to decumbent. It can get woody at the base." ... "In nature, the plants grow mostly in sandy soil on steep slopes or at the base of cliffs." [No evidence. Unlikely, although dense stands could contribute to fuel load]

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 26 Oct 2017]	" <i>Dimorphotheca ecklonis</i> must be planted in full sun in order for the flowers to open to their full potential, although they will tolerate some shade during the day."
	Gardenersworld.com. 2017. <i>Osteospermum ecklonis</i> . http://www.gardenersworld.com/plants/plant-finder/osteospermum-ecklonis/ . [Accessed 26 Oct 2017]	"For best results grow <i>Osteospermum ecklonis</i> in a sheltered spot in well-drained soil in full sun. " "Sun exposure: Full sun"
	Shoot Gardening. 2017. <i>Osteospermum ecklonis</i> Asti Series (African daisy 'Asti Mix'). https://www.shootgardening.co.uk/ . [Accessed 26 Oct 2017]	"Light Full Sun"
	Park Seed. 2017. Asti™ White <i>Osteospermum</i> Seeds. https://parkseed.com/asti-white-osteospermum-flower-seeds/p/51526-PK-P1/ . [Accessed 26 Oct 2017]	"Sun-loving and very forgiving of harsh conditions, they deserve a place of honor in your garden!"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Cornell University. 2017. <i>Osteospermum</i> . http://www.gardening.cornell.edu/homegardening/scene82d7.html . [Accessed 26 Oct 2017]	"Soil conditions: tolerates droughty soil requires well-drained soil tolerates low fertility"
	Shoot Gardening. 2017. <i>Osteospermum ecklonis</i> Asti Series (African daisy 'Asti Mix'). https://www.shootgardening.co.uk/ . [Accessed 26 Oct 2017]	"Soil type - Chalky, Loamy, Sandy Soil drainage - Moist but well-drained, Well-drained Soil pH - Acid, Alkaline, Neutral"
	Gardenersworld.com. 2017. <i>Osteospermum ecklonis</i> . http://www.gardenersworld.com/plants/plant-finder/osteospermum-ecklonis/ . [Accessed 26 Oct 2017]	"Soil type: Well drained/light/sandy"

Qsn #	Question	Answer
411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 25 Oct 2017]	" <i>Dimorphotheca ecklonis</i> is a perennial plant of up to 1 m tall and as much in diameter, erect to decumbent. It can get woody at the base. The leaves are alternately arranged, sessile, simple, elliptic and slightly succulent, and the margins are entire to conspicuously dentate, crowded at the ends of the branches. The lower branches are quite nude."

412	Forms dense thickets	y
	Source(s)	Notes
	Southern Councils Group. 2012. Environmental Weeds - African Daisy. http://archive.southerncouncils.nsw.gov.au/ . [Accessed 26 Oct 2017]	"It is very widespread around all coastal communities and is rapidly invading adjacent bushland where it can form a dense understorey excluding native species."

501	Aquatic	n
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 25 Oct 2017]	[Terrestrial] "In nature, the plants grow mostly in sandy soil on steep slopes or at the base of cliffs."

502	Grass	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 25 Oct 2017]	Family: Asteraceae (alt.Compositae) Subfamily: Asteroideae Tribe: Calenduleae

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 25 Oct 2017]	Family: Asteraceae (alt.Compositae) Subfamily: Asteroideae Tribe: Calenduleae

Qsn #	Question	Answer
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 25 Oct 2017]	" <i>Dimorphotheca ecklonis</i> is a perennial plant of up to 1 m tall and as much in diameter, erect to decumbent. It can get woody at the base. The leaves are alternately arranged, sessile, simple, elliptic and slightly succulent, and the margins are entire to conspicuously dentate, crowded at the ends of the branches. The lower branches are quite nude."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 25 Oct 2017]	"Although this species is not currently included in the South African plant Red Data Lists of 2002, it should be considered as threatened as it has a small distribution area in the Eastern Cape where its habitat is threatened by cultivation, urbanisation and agriculture." [Despite threats, no evidence of substantial reproductive failure]

602	Produces viable seed	y
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 26 Oct 2017]	"Cape marguerite can be cultivated from cuttings taken in summer. Seed germinates easily and the plants often sow themselves."
	Park Seed. 2017. Asti™ White <i>Osteospermum</i> Seeds. https://parkseed.com/asti-white-osteospermum-flower-seeds/p/51526-PK-P1/ . [Accessed 26 Oct 2017]	"Winner of a 2008 All-America Selection, Asti™ White is the first separate color for African Daisies available from seed."

603	Hybridizes naturally	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown

604	Self-compatible or apomictic	
	Source(s)	Notes
	Waal, C., Rodger, J. G., Anderson, B., & Ellis, A. G. (2014). Selfing ability and dispersal are positively related, but not affected by range position: a multispecies study on southern African Asteraceae. <i>Journal of Evolutionary Biology</i> , 27(5), 950-959	[Unknown. Self-compatibility documented in genus] "Pollination treatment significantly affected fruit set in all species except <i>Gazania tenuifolia</i> , <i>Osteospermum monstrosum</i> , <i>Ursinia anthemoides</i> and <i>Ursinia nana</i> (Tables 2 and S3; Figs S1–S4). AFX values (Table S2) classify these four species as fully self-compatible. These species are also highly autonomously self-pollinating, as indicated by similar values for fruit set in hand self-pollination and autonomous self-pollination treatments"

605	Requires specialist pollinators	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Gardenersworld.com. 2017. <i>Osteospermum ecklonis</i> . http://www.gardenersworld.com/plants/plant-finder/osteospermum-ecklonis/ . [Accessed 26 Oct 2017]	"Attracts: Bees, Other pollinators" ... "Wildlife features: Nectar/pollen rich flowers"
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 26 Oct 2017]	"Butterflies are attracted to the flowers and they are obviously the pollinators of this species."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 26 Oct 2017]	"Cape marguerite can be cultivated from cuttings taken in summer. Seed germinates easily and the plants often sow themselves."
	Murray, B. R., & Phillips, M. L. (2010). Investment in seed dispersal structures is linked to invasiveness in exotic plant species of south eastern Australia. <i>Biological Invasions</i> , 12 (7): 2265-2275	[No observed capacity for vegetative spread] "Table 1 The dataset of naturalized exotic plant species of Royal National Park (south-eastern Australia) and attribute values for invasion status" [<i>Osteospermum ecklonis</i> - capacity for vegetative spread (1 = no observed capacity)]

607	Minimum generative time (years)	1
	Source(s)	Notes
	Park Seed. 2017. Asti™ White <i>Osteospermum</i> Seeds. https://parkseed.com/asti-white-osteospermum-flower-seeds/p/51526-PK-P1/ . [Accessed 26 Oct 2017]	"Additional Characteristics: Bloom First Year, Flower, Free Bloomer, Long Bloomers, Needs Deadheading, Season Extenders "
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 26 Oct 2017]	"Seed germinates easily and the plants often sow themselves. They are fast-growing, frost-hardy and drought-resistant."

Qsn #	Question	Answer
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y
	Source(s)	Notes
	Shire of Mundaring. 2013. Plants Out of Place. Managing weeds in Perth's eastern region. http://www.kalamunda.wa.gov.au . [Accessed 27 Oct 2017]	"Occasionally found around settlements, often growing from dumped garden rubbish"
	Southern Councils Group. 2012. Environmental Weeds - African Daisy. http://archive.southerncouncils.nsw.gov.au/ . [Accessed 26 Oct 2017]	"Seeds are long-lived and are wind and water dispersed. They are commonly spread by dumping."
	Environmental Services: Shire of Kalamunda. 2012. Garden Escapees Know Your Weeds! http://www.kalamunda.wa.gov.au . [Accessed 26 Oct 2017]	"Veld Daisy (or Cape Daisy) is native to South Africa and grows to 0.5m high. Leaves have strong smell when crushed and seeds are spread by wind, water, dumped garden waste, and the movement of soil."
	Barrett, R. & Tay, E. P. 2016. Perth Plants: A Field Guide to the Bushland and Coastal Flora of Kings Park and Bold Park. CSIRO Publishing, Clayton, Australia	Naturalised from garden waste in Bold Park and in Kings Park below the botanic garden and near Park Avenue."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Gardenersworld.com. 2017. <i>Osteospermum ecklonis</i> . http://www.gardenersworld.com/plants/plant-finder/osteospermum-ecklonis/ . [Accessed 26 Oct 2017]	" <i>Osteospermum</i> are grown for their daisy-like flowers, which are produced all summer long. <i>Osteospermum ecklonis</i> has beautiful white blooms, which are deep blue on the reverse of the petals, with a dark blue centre."
	Park Seed. 2017. Asti™ White <i>Osteospermum</i> Seeds. https://parkseed.com/asti-white-osteospermum-flower-seeds/p/51526-PK-P1/ . [Accessed 26 Oct 2017]	"Sun-loving and very forgiving of harsh conditions, they deserve a place of honor in your garden! Pkt is 10 seeds." [Seeds sold online]

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	Environmental Services: Shire of Kalamunda. 2012. Garden Escapees Know Your Weeds! http://www.kalamunda.wa.gov.au . [Accessed 27 Oct 2017]	"...seeds are spread by wind, water, dumped garden waste, and the movement of soil." [Unknown. Possible that seeds could be moved in potting soil, or media used to cultivate other ornamental plants]

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Southern Councils Group. 2012. Environmental Weeds - African Daisy. http://archive.southerncouncils.nsw.gov.au/ . [Accessed 26 Oct 2017]	"Seeds are long-lived and are wind and water dispersed. They are commonly spread by dumping."
	Environmental Services: Shire of Kalamunda. 2012. Garden Escapees Know Your Weeds! http://www.kalamunda.wa.gov.au . [Accessed 26 Oct 2017]	"Veld Daisy (or Cape Daisy) is native to South Africa and grows to 0.5m high. Leaves have strong smell when crushed and seeds are spread by wind, water, dumped garden waste, and the movement of soil. Hand pull or dig out small plants ensuring you remove all root material, as it can re-sprout."

Qsn #	Question	Answer
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 26 Oct 2017]	[Small wings on seeds. Presumably wind-dispersed over short distances] "The fruits have no special adaptations for dispersal and seedlings are often found near the parent plants. Small wings are present on the three corners of the fruits, which might assist in wind dispersal."

705	Propagules water dispersed	y
	Source(s)	Notes
	Southern Councils Group. 2012. Environmental Weeds - African Daisy. http://archive.southerncouncils.nsw.gov.au/ . [Accessed 26 Oct 2017]	"Seeds are long-lived and are wind and water dispersed. They are commonly spread by dumping."

706	Propagules bird dispersed	n
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 26 Oct 2017]	"The fruits have no special adaptations for dispersal and seedlings are often found near the parent plants. Small wings are present on the three corners of the fruits, which might assist in wind dispersal."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Environmental Services: Shire of Kalamunda. 2012. Garden Escapees Know Your Weeds! http://www.kalamunda.wa.gov.au . [Accessed 27 Oct 2017]	"...seeds are spread by wind, water, dumped garden waste, and the movement of soil."
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 27 Oct 2017]	"The fruits have no special adaptations for dispersal and seedlings are often found near the parent plants. Small wings are present on the three corners of the fruits, which might assist in wind dispersal." [No means of external attachment]

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 27 Oct 2017]	"The fruits have no special adaptations for dispersal and seedlings are often found near the parent plants. Small wings are present on the three corners of the fruits, which might assist in wind dispersal." [No evidence that seeds are consumed, or will survive, gut passage]

801	Prolific seed production (>1000/m ²)	
	Source(s)	Notes
	Herman, P. P. J. 2005. <i>Dimorphotheca eckloni</i> . PlantZAfrica. SANBI. http://pza.sanbi.org/dimorphotheca-ecklonis . [Accessed 27 Oct 2017]	[Seed densities unknown] "Butterflies are attracted to the flowers and they are obviously the pollinators of this species. The fruits have no special adaptations for dispersal and seedlings are often found near the parent plants. Small wings are present on the three corners of the fruits, which might assist in wind dispersal."

Qsn #	Question	Answer
802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Southern Councils Group. 2012. Environmental Weeds - African Daisy. http://archive.southerncouncils.nsw.gov.au/ . [Accessed 27 Oct 2017]	[Longevity unknown] "Seeds are long-lived and are wind and water dispersed. They are commonly spread by dumping."
	Bass, L. N., Toy, S. J., Sayers, R. L., & Clark, D. C. (1967). Storage of <i>Dimorphotheca sinuata</i> and <i>Osteospermum ecklonis</i> seed. In Proceedings of the Association of Official Seed Analysts 57: 67-70	[Unknown. Seeds in storage lose viability under certain conditions, but may remain viable under others] " <i>Osteospermum ecklonis</i> and winged and unwinged <i>Dimorphotheca sinuata</i> seeds were stored at nine temperature/relative humidity conditions. Seeds held at 32/90 and 21/90 died within 3 months, and those at 10/90 within 12 months. Seeds stored at 32/70 died within 6 months, and those at 21/70 within 24 months, but seeds at 10/70 retained one-half to three-fourths their original viability after 42 months. Seeds stored at 32/50 were worthless after 18 months, while seeds at 21/50 still retained essentially their original viability. Seeds stored at 10/50 lost very little germination during 42 months of storage."

803	Well controlled by herbicides	y
	Source(s)	Notes
	Litoria Ecoservices. 2009. The Dunsborough Foreshore Management Plan. Shire of Busselton. www.busselton.wa.gov.au	"APPENDIX 2: METHODS OF WEED CONTROL ... Veld Daisy <i>Dimorphotheca ecklonis</i> ... Spray with 1% Glyphosate" [Presumably effective method of control]
	Shire of Mundaring. 2013. Plants Out of Place. Managing weeds in Perth's eastern region. http://www.kalamunda.wa.gov.au . [Accessed 27 Oct 2017]	" <i>Osteospermum ecklonis</i> ... Spot spray with glyphosate before flowering" [Presumably effectively controlled by glyphosate]

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Environmental Services: Shire of Kalamunda. 2012. Garden Escapees Know Your Weeds! http://www.kalamunda.wa.gov.au . [Accessed 26 Oct 2017]	"Veld Daisy (or Cape Daisy) is native to South Africa and grows to 0.5m high. ... "Hand pull or dig out small plants ensuring you remove all root material, as it can re-sprout."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Able to grow in 5 hardiness zones, demonstrating environmental versatility
- Able to grow in regions with subtropical climate
- Naturalized in Australia, Spain, California, and possibly elsewhere
- Regarded as an environmental weed in Australia
- Other *Osteospermum* species are weedy
- Toxic to livestock (contains hydrocyanic acid)
- Tolerates many soil types
- Reported to form dense stands in Australia
- Reproduces by seeds
- Able to reach maturity in <1 year
- Seeds dispersed by wind, water, dumped garden waste & intentionally by people
- Reported to resprout after cutting (if not uprooted)

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Ornamental
- Thrives in high light environments (may not be able to invade forest understory)
- Not reported to spread vegetatively
- Herbicides may provide effective control