

Family: *Euphorbiaceae*

Taxon: *Euphorbia stenoclada*

Synonym: *Euphorbia cirsioides* Costantin & Gallaud Common Name Silver Thicket
Euphorbia insulae-europae Pax

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: EVALUATE
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score 3
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		y=1, n=0	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)	y
401	Produces spines, thorns or burrs		y=1, n=0	y
402	Allelopathic		y=1, n=0	
403	Parasitic		y=1, n=0	n
404	Unpalatable to grazing animals		y=1, n=-1	n
405	Toxic to animals		y=1, n=0	
406	Host for recognized pests and pathogens		y=1, n=0	
407	Causes allergies or is otherwise toxic to humans		y=1, n=0	y
408	Creates a fire hazard in natural ecosystems		y=1, n=0	
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0	n
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	
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	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	
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	
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	
708	Propagules survive passage through the gut	y=1, n=-1	
801	Prolific seed production (>1000/m2)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: EVALUATE

WRA Score 3

Supporting Data:

101	2011. WRA Specialist. Personal Communication.	No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"Endemic to south-western Malagasy (ZE II-III), it has been introduced to East Africa as an ornamental (White 1983; Rabesandratana 1984)"
202	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"Endemic to south-western Malagasy..."
203	2000. Seddon, N./Tobias, J./Yount, J.W./Ramanampamonjy, J.R./Butchart, S./Randrianahana, H.. Conservation issues and priorities in the Mikea Forest of south-west Madagascar. <i>Oryx</i> , 34(4): 287–304. 34(4): 287–304.	"The vegetation forms a complex mosaic but largely comprises a dense, highly xerophytic flora attaining a maximum height of 6 m towards the coast and 8–12 m further inland. This flora is characterized by succulent and spinescent plants,...The tree flora additionally includes woody euphorbias (e.g. <i>Euphorbia stenoclada</i> near the coast...Within 2 km of the coast the vegetation becomes more sparse and scrub-like and <i>E. stenoclada</i> and <i>Aloe divaricata</i> dominate."
203	2011. Dave's Garden. PlantFiles: Silver Thicket - <i>Euphorbia stenoclada</i> . http://davesgarden.com/guides/pf/go/60923/	"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)"
204	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"Endemic to south-western Malagasy (ZE II-III), it has been introduced to East Africa as an ornamental..."
205	2002. Lorence, D.H.. Specimen Details for <i>Euphorbia stenoclada</i> Baill. [BISH 709221]. Bishop Museum, http://nsdb.bishopmuseum.org/include/cpop.asp?catnum=21841334	"Locality: USA, Pacific Ocean, Main Hawaiian Islands, Kauai, & Koloa, Lawai, NTBG, E-W ridge separating Lower Valley from Medicinal plants area"
205	2011. Dave's Garden. PlantFiles: Silver Thicket - <i>Euphorbia stenoclada</i> . http://davesgarden.com/guides/pf/go/60923/	"This plant has been said to grow in the following regions: Phoenix, Arizona Scottsdale, Arizona Clayton, California Reseda, California Spring Valley, California Thousand Oaks, California"
205	2011. WRA Specialist. Personal Communication.	Available from several nursery & horticulture websites, but unknown how widely planted this species is outside native range.
301	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	No evidence
302	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	No evidence
303	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	No evidence
305	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	" <i>Euphorbia esula</i> ...spreads by seeds and by vegetative growth from the rootstock. It rapidly expands and forms large and dense patches that displace native grasses and forbs."
401	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"a wax-coated, globose, bushy shrub or tree up to 6 m tall with a scaly bark and a flat-topped crown of olive-green, succulent branches bearing caducous leaves and secondary twigs armed with paired, modified, spinose branchlets."
402	2011. WRA Specialist. Personal Communication.	Unknown
403	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"a wax-coated, globose, bushy shrub or tree up to 6 m tall..." [not parasitic]
404	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"Branch apices are eaten by zebus" [zebus, or brahmin cattle are a type of domestic cattle originating in South Asia]

404	2006. Kaufmann, J.C./Tsirahamba, S.. Forests and Thorns: Conditions of Change Affecting Mahafale Pastoralists in Southwestern Madagascar. Conservation and Society. 4(2): 231-261.	"Zebu herders have speckled the landscape with trees they call samata (<i>Euphorbia stenoclada</i>) or samata foty and famata foty in other Mahafale locations (Charles et al. 1991), and arahaka in Antandroy country to the east (Decorse 1901b). They favoured this tree because their livestock were able to eat the non-toxic coral-like xerophyte with its succulent, somewhat spiny, pencil-shaped branch segments. They used it as cattle browse and grass supplement for hundreds of years. In 1997, herders still fed it as supplemental fodder after the grass season was over and before the rainy season. This landscape was widespread along the Mahafale coastal plain (Rabesandratana 1999). [Table 3] provides a synopsis of the study site...Herders have turned some of the coastal plain, from Ampalaza near the mouth of the Menarandra River to Itampolo ninety kilometres north, into a 'samata landscape,' in which most other trees have been thinned, giving this useful, succulent tree more space to grow into the main tree in sight. The landscape resembled an expansive nursery of <i>E. stenoclada</i> trees evenly spaced across the spiny thicket. The samata were shaped into bushy-topped trees, a result of cutting the lower branches for their stock and slicing them for their cattle, or, in the case of young trees, letting cattle and goats pull the lower branches off themselves. "
404	2009. Nagendra, H./Southworth, J.. Reforesting Landscapes: Linking Pattern and Process. Springer, New York	"Patterns of forest loss and regeneration have long been shaped by human activities in Madagascar...the Mahafaly pastoralists view the dry forests of the southwest as essential reserves for browse and fodder in times of drought. The herders open up areas of pasture in the forest by grazing animals, and plant and encourage species that provide sources of water and fodder for cattle, such as the endemic <i>Euphorbia stenoclada</i> ."
405	1998. Stiles, D.. The Mikea Hunter-Gatherers of Southwest Madagascar: Ecology and Socioeconomics. African Study Monographs 19(3): 127-148. 19(3): 127-148.	" <i>Euphorbia stenoclada</i> : Masikoro use sap (loko) to stun fish" [potential toxicity to other animals]
405	2006. Kaufmann, J.C./Tsirahamba, S.. Forests and Thorns: Conditions of Change Affecting Mahafale Pastoralists in Southwestern Madagascar. Conservation and Society. 4(2): 231-261.	"Zebu herders have speckled the landscape with trees they call samata (<i>Euphorbia stenoclada</i>) or samata foty and famata foty in other Mahafale locations (Charles et al. 1991), and arahaka in Antandroy country to the east (Decorse 1901b). They favoured this tree because their livestock were able to eat the non-toxic coral-like xerophyte with its succulent, somewhat spiny, pencil-shaped branch segments. They used it as cattle browse and grass supplement for hundreds of years. In 1997, herders still fed it as supplemental fodder after the grass season was over and before the rainy season. This landscape was widespread along the Mahafale coastal plain (Rabesandratana 1999). [Table 3] provides a synopsis of the study site." [non-toxic to Zebu? But see 4.07]
406	2011. WRA Specialist. Personal Communication.	Unknown
407	2003. Trager, J.N.. The Huntington Botanical Gardens presents the 2003 offering of International Succulent Introductions. 75 (2). http://www.huntington.org/BotanicalDiv/ISI2003/isi/2003-24.html	"People who have experienced contact with the milky sap of euphorbias report a variety of unpleasant symptoms. On the skin it can result in blisters if not quickly dealt with. Even the vapors can result in stinging eyes and mucous membranes of the nasal passage, and sap in the eyes can cause temporary (or long lasting) blindness. What all collectors of euphorbias should know—and what most medical professionals and poison control centers do not—is that the sap is not water soluble but is fat-soluble. We have found the most effective method for cleaning it from skin or tools is to first rub it off with a vegetable- or mineral-oil-soaked towel, then to wash away the oil with soap and water. Insufficient research has been done to find lipid solvents that do not harm the eyes. Folk medicine claims that the juice of <i>Aeonium lindleyi</i> is an antidote for euphorbia sap, but no one has volunteered their eyes for a controlled experiment to prove its worth. When taking cuttings it is advisable to wear protective gloves, clothing and eyewear. If working for a prolonged period when the vapors are likely to be inhaled, a respirator fitted with organic chemical filters will prevent respiratory irritation."
407	2011. Dave's Garden. PlantFiles: Silver Thicket - <i>Euphorbia stenoclada</i> . http://davesgarden.com/guides/pf/go/60923/	"Danger: All parts of plant are poisonous if ingested Handling plant may cause skin irritation or allergic reaction Plant has spines or sharp edges; use extreme caution when handling"
407	2011. Top Tropicals. <i>Euphorbia stenoclada</i> . Top Tropicals Botanical Garden, http://toptropicals.com/catalog/uid/euphorbia_stenoclada.htm	"The sap of this <i>Euphorbia</i> is generally not irritating on the skin, but avoid putting any in your mouth or eyes."
408	2011. WRA Specialist. Personal Communication.	Unknown. Grows in drier areas, but succulent. Flammability of plant unknown.

409	2011. Dave's Garden. PlantFiles: Silver Thicket - Euphorbia stenoclada. http://davesgarden.com/guides/pf/go/60923/	"Sun Exposure: Full Sun"
409	2011. Plant This. Euphorbia stenoclada. http://plantthis.com/plant-information.asp?gardener=14528&tabview=design&plantSpot=0	"Sunlight: hot overhead sun"
410	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"it grows on calcareous sands."
410	2011. Dave's Garden. PlantFiles: Silver Thicket - Euphorbia stenoclada. http://davesgarden.com/guides/pf/go/60923/	"Soil pH requirements: 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral) 7.6 to 7.8 (mildly alkaline)"
410	2011. Plant This. Euphorbia stenoclada. http://plantthis.com/plant-information.asp?gardener=14528&tabview=design&plantSpot=0	"Soil: ordinary soil, enriched soil, mildly acidic to mildly alkaline"
411	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"a wax-coated, globose, bushy shrub or tree up to 6 m tall..." [not climbing or smothering]
412	2001. Le Corre, M./Safford, R.J.. La Réunion & Iles Eparses. Pp. 693-702 in Fishpool, L.D.C. /Evans, M.I. (eds.). Important Bird Areas in Africa & associated islands: Priority sites for conservation. Pisces Publications & BirdLife International, Newbury &	"Europa is an island in the southern Mozambique Channel, 350 km west south west of Morombe, Madagascar. It is one of the least modified coralline islands in the western Indian Ocean and was formed from the progressive filling of an ancient atoll which appeared 90,000 years ago. It is composed of a central lagoon largely surrounded by mangrove <i>Rhizophora mucronata</i> ; shrubland, bushland and thicket, dominated by <i>Psiadia altissima</i> , <i>Suriana maritima</i> and/or <i>Pemphis acidula</i> ; <i>Euphorbia stenoclada</i> dry forest; <i>Sclerodactylon macrostachyum</i> grassland; halophile vegetation (<i>Arthrocnemum indicum</i>) and a fringing beach- and dune system rising to 12 m, the highest land on the island." [part of thicket vegetation within native range. Potential to form thickets within introduced range]
501	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"a wax-coated, globose, bushy shrub or tree up to 6 m tall..." [terrestrial]
502	2011. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/	Euphorbiaceae
503	2011. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/	Euphorbiaceae [not a nitrogen fixing woody plant]
504	1998. Wickens, G.E.. Ecophysiology of economic plants in arid and semi-arid lands. Springer-Verlag, Berlin, Heidelberg, New York	"a wax-coated, globose, bushy shrub or tree up to 6 m tall..." [not a geophyte]
601	2011. IUCN. IUCN red list: Euphorbia stenoclada. http://www.iucnredlist.org/apps/redlist/details/44443/0	"As the typical subspecies has a large extent of occurrence (87,841.1 km ²) and large area of occupancy (34,280.7 km ²). Recorded from 30 localities and comprises six to twelve subpopulations. There are some threats, but these do not yet trigger a threatened status. The species itself is therefore listed as Least Concern, although subsp. <i>Ambatofinandrae</i> is Critically Endangered...Major Threat(s): Habitat degradation, fire, habitat clearing for charcoal, and mining. Grows only on cipolin rocks, which are exploited as a valuable source of white marble. This species is also used to feed Zebus." [Listed as an IUCN species of "Least Concern (LC)". Habitat degradation & exploitation a cause for concern, but otherwise, no evidence of substantial reproductive failure]
602	2003. Trager, J.N.. The Huntington Botanical Gardens presents the 2003 offering of International Succulent Introductions. 75 (2). http://www.huntington.org/BotanicalDiv/ISI2003/isi/2003-24.html	" <i>Euphorbia stenoclada</i> is allied to the common milk bush, <i>E. tirucalli</i> (offered below), but, oh, how different it is. At this point our seedlings are reminiscent of snarling kittens that give an endearing preview of their mature ferocity. Unlike the smooth cylindrical stems of <i>E. tirucalli</i> , those of <i>E. stenoclada</i> are flattened and drawn out into sharp-tipped thorns. Both species grow into imposing shrubs or small trees that bleed with a rather virulent milky latex when injured, making either suitable for barrier plantings. HBG 89143, plants grown from seed collected Nov. 18, 2001, by Rössli & Hoffmann (1101) in the dunes around Lac Anony, Madagascar, where it grows with <i>Uncarina roeoesliana</i> , <i>Commiphora lamii</i> and <i>Aloe vaotsanda</i> ."
603	2011. WRA Specialist. Personal Communication.	Unknown

604	2011. WRA Specialist. Personal Communication.	Unknown
605	1994. Webster, G.L.. Classification of the Euphorbiaceae. <i>Annals of the Missouri Botanical Garden</i> . 81(1): 3-32.	"Pollination is prevailingly entomophilous"
605	1994. Zomlefer, W.B.. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London	"Most euphorbs easily attract pollinators (mostly flies) with the nectar secreted by the extrastaminal disc or glands..."
605	2011. SucculentGuide.com. Genus: Euphorbia. Euphorbia stenoclada. http://www.succulentguide.com/graphics/e_stenoclada_c_600.jpg	No written description of flowers, but image shows typical Euphorbia floral structure.
606	2011. WRA Specialist. Personal Communication.	Unknown
607	2011. Plant This. Euphorbia stenoclada. http://plantthis.com/plant-information.asp?gardener=14528&tabview=design&plantSpot=0	"Growth rate: average" [but time to reproductive maturity unknown]
701	2011. WRA Specialist. Personal Communication.	Unknown [limited information available on dispersal of this plant]
702	2011. bidorbuy.co.za. Euphorbia stenoclada Seeds. http://www.bidorbuy.co.za/item/32447638/Euphorbia_stenoclada_Seeds_Silver_Thicket_Euphorbia_Exotic_Succulents.html	Seeds available for sale
702	2011. Dave's Garden. PlantFiles: Silver Thicket - Euphorbia stenoclada. http://davesgarden.com/guides/pf/go/60923/	Cultivated as an ornamental
703	2011. WRA Specialist. Personal Communication.	Due to spiny nature of plant, and limited use in cultivation, it is unlikely that this species will be dispersed as a produce contaminant
704	2005. Narbona, E./Arista, M./Ortiz, P.L.. Explosive seed dispersal in two perennial Mediterranean Euphorbia species (Euphorbiaceae). <i>American Journal of Botany</i> . 92: 510-516.	"The Euphorbiaceae family presents a great diversity of dispersal systems (Webster, 1994). Autochory is the primitive situation in the family (Berg, 1975b; Webster, 1994) and is present in numerous genera; however, those presenting carunculate seeds dispersed by ants and those having fleshy fruit dispersed by birds are also frequent (Webster, 1994). The genus Euphorbia has fruits with explosive dehiscence produced by the differing orientation of the cells of the mechanical wall (Berg, 1990). In addition, in most cases the seeds have a lipid rich caruncle that functions as an elaiosome, attracting ants and initiating a myrmecochorous secondary dispersal (Berg, 1975b). It has been reported that the distance to which the ants move the seeds is greater than that achieved by explosive dispersal (Stamp and Lucas, 1990). The presence of an elaiosome for myrmecochorous dispersal may alter the seed aerodynamics, reducing the distance of explosive dispersal (Beattie and Lyons, 1975). In some species of Euphorbia, however, the caruncle is readily shed from the seeds (Benedi' et al., 1997). This could increase the explosive dispersal distance, but the seeds would lose their attractiveness to the disperser ants. In fact, due to constraints of the explosive mechanism, plant species that use explosive dispersal are postulated to maximize either explosive distances or secondary dispersal (Beattie and Lyons, 1975; Stamp and Lucas, 1983)." [generic description. Exact dispersal mechanism unknown for Euphorbia stenoclada. Depending on seed size, could potentially be dispersed short distances by wind]
705	2000. Seddon, N./Tobias, J./Yount, J.W./Ramanampamonjy, J.R./Butchart, S./Randrianizahana, H.. Conservation issues and priorities in the Mikea Forest of south-west Madagascar. <i>Oryx</i> , 34(4): 287-304. 34(4): 287-304.	"The vegetation forms a complex mosaic but largely comprises a dense, highly xerophytic flora attaining a maximum height of 6 m towards the coast and 8-12 m further inland. This flora is characterized by succulent and spinescent plants....The tree flora additionally includes woody euphorbias (e.g. Euphorbia stenoclada near the coast...Within 2 km of the coast the vegetation becomes more sparse and scrub-like and E. stenoclada and Aloe divaricata dominate." [occurs naturally in dry, inland areas. Unlikely to be adapted for water dispersal]

706	2005. Narbona, E./Arista, M./Ortiz, P.L.. Explosive seed dispersal in two perennial Mediterranean Euphorbia species (Euphorbiaceae). American Journal of Botany. 92: 510-516.	"The Euphorbiaceae family presents a great diversity of dispersal systems (Webster, 1994). Autochory is the primitive situation in the family (Berg, 1975b; Webster, 1994) and is present in numerous genera; however, those presenting carunculate seeds dispersed by ants and those having fleshy fruit dispersed by birds are also frequent (Webster, 1994). The genus Euphorbia has fruits with explosive dehiscence produced by the differing orientation of the cells of the mechanical wall (Berg, 1990). In addition, in most cases the seeds have a lipid rich caruncle that functions as an elaiosome, attracting ants and initiating a myrmecochorous secondary dispersal (Berg, 1975b). It has been reported that the distance to which the ants move the seeds is greater than that achieved by explosive dispersal (Stamp and Lucas, 1990). The presence of an elaiosome for myrmecochorous dispersal may alter the seed aerodynamics, reducing the distance of explosive dispersal (Beattie and Lyons, 1975). In some species of Euphorbia, however, the caruncle is readily shed from the seeds (Benedi' et al., 1997). This could increase the explosive dispersal distance, but the seeds would lose their attractiveness to the disperser ants. In fact, due to constraints of the explosive mechanism, plant species that use explosive dispersal are postulated to maximize either explosive distances or secondary dispersal (Beattie and Lyons, 1975; Stamp and Lucas, 1983)." [generic description. Exact dispersal mechanism unknown for Euphorbia stenoclada, but Euphorbia species not adapted for bird dispersal]
707	2005. Narbona, E./Arista, M./Ortiz, P.L.. Explosive seed dispersal in two perennial Mediterranean Euphorbia species (Euphorbiaceae). American Journal of Botany. 92: 510-516.	"The Euphorbiaceae family presents a great diversity of dispersal systems (Webster, 1994). Autochory is the primitive situation in the family (Berg, 1975b; Webster, 1994) and is present in numerous genera; however, those presenting carunculate seeds dispersed by ants and those having fleshy fruit dispersed by birds are also frequent (Webster, 1994). The genus Euphorbia has fruits with explosive dehiscence produced by the differing orientation of the cells of the mechanical wall (Berg, 1990). In addition, in most cases the seeds have a lipid rich caruncle that functions as an elaiosome, attracting ants and initiating a myrmecochorous secondary dispersal (Berg, 1975b). It has been reported that the distance to which the ants move the seeds is greater than that achieved by explosive dispersal (Stamp and Lucas, 1990). The presence of an elaiosome for myrmecochorous dispersal may alter the seed aerodynamics, reducing the distance of explosive dispersal (Beattie and Lyons, 1975). In some species of Euphorbia, however, the caruncle is readily shed from the seeds (Benedi' et al., 1997). This could increase the explosive dispersal distance, but the seeds would lose their attractiveness to the disperser ants. In fact, due to constraints of the explosive mechanism, plant species that use explosive dispersal are postulated to maximize either explosive distances or secondary dispersal (Beattie and Lyons, 1975; Stamp and Lucas, 1983)." [generic description. Exact dispersal mechanism unknown for Euphorbia stenoclada. If a caruncle is present, could be externally dispersed by ants]
708	2011. WRA Specialist. Personal Communication.	Unknown [although seeds may be consumed by ungulates See 4.04]
801	2011. WRA Specialist. Personal Communication.	Unknown
802	2011. WRA Specialist. Personal Communication.	Unknown
803	2011. WRA Specialist. Personal Communication.	Unknown. No information found on control with herbicides.
804	2011. WRA Specialist. Personal Communication.	Unknown
805	2011. WRA Specialist. Personal Communication.	Unknown