Key Words: High Risk, Naturalized, Garden Weed, Ornamental, Wind-dispersed seeds

Family: ***Asteraceae***

Taxon: ***Centratherum punctatum***

Synonym: *Ampherephis intermedia Link*
Ampherephis mutica Kunth
Centratherum intermedium (Link) Less.
Centratherum muticum (Kunth) Less.

Common Name: Larkdaisy
Brazilian button flower
Porcupine Flower

Questionaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** H(HPWRA)
Status: Assessor Approved **Data Entry Person:** Assessor **WRA Score 8**

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**	**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**	
301	**Naturalized beyond native range**	**y = 1*multiplier (see Appendix 2), n= question 205**	**y**
302	**Garden/amenity/disturbance weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**y**
303	**Agricultural/forestry/horticultural weed**	**n=0, y = 2*multiplier (see Appendix 2)**	
304	**Environmental weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
305	**Congeneric weed**	**n=0, y = 1*multiplier (see Appendix 2)**	
401	**Produces spines, thorns or burrs**	**y=1, n=0**	**n**
402	**Allelopathic**	**y=1, n=0**	**n**
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**	**n**
408	**Creates a fire hazard in natural ecosystems**	**y=1, n=0**	**n**
409	**Is a shade tolerant plant at some stage of its life cycle**	**y=1, n=0**	**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**	**n**
501	**Aquatic**	**y=5, n=0**	**n**
502	**Grass**	**y=1, n=0**	**n**
503	**Nitrogen fixing woody plant**	**y=1, n=0**	**n**
504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**y=1, n=0**	**n**
601	**Evidence of substantial reproductive failure in native habitat**	**y=1, n=0**	**n**
602	**Produces viable seed**	**y=1, n=-1**	**y**
603	**Hybridizes naturally**	**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**	**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**	
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**	
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: H(HPWRA) **WRA Score** **8**

Supporting Data:

101	1975. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G. et al.. Flora of Panama. Part IX. Family 184. Compositae. Annals of the Missouri Botanical Garden. 62(4): 835-1321.	[Is the species highly domesticated? No] No evidence
101	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Is the species highly domesticated? No] No evidence
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Species suited to tropical or subtropical climate(s) 2-High] "Old World tropics from the Philippines to Australia"
201	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Species suited to tropical or subtropical climate(s) 2-High] "Native to tropical America" [possible Pan-tropical distribution]
201	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Species suited to tropical or subtropical climate(s) 2-High] " ASIA-TROPICAL Malesia: Philippines AUSTRALASIA Australia: Australia - New South Wales, Northern Territory, Queensland SOUTHERN AMERICA Caribbean: Trinidad and Tobago - Trinidad Mesoamerica: Panama Northern South America: French Guiana; Guyana; Venezuela Brazil: Brazil - Acre, Amazonas, Bahia, Ceara, Espirito Santo, Federal District, Goias, Maranhao, Mato Grosso, Minas Gerais, Para, Parana, Pernambuco, Piaui, Rio de Janeiro, Santa Catarina, Sao Paulo Western South America: Bolivia; Colombia; Ecuador; Peru Southern South America: Argentina - Corrientes, Misiones; Paraguay"
202	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Quality of climate match data? 2-High] "Old World tropics from the Philippines to Australia"
203	1975. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G. et al.. Flora of Panama. Part IX. Family 184. Compositae. Annals of the Missouri Botanical Garden. 62(4): 835-1321.	[Broad climate suitability (environmental versatility)? Yes] "Locally common in rocky or gravelly savanna like areas, this species can be found near sea level but occurs more frequently from 600-1200 m altitude." [Elevation range exceeds 1000 m]
203	2012. Dave's Gardern. PlantFiles: Brazilian Bachelor's Button, Brazilian Button Flower, Larkdaisy, Porcupine Flower - Centratherum intermedium. http://davesgarden.com/guides/pf/go/713/	[Broad climate suitability (environmental versatility)? Yes] "Hardiness: USDA Zone 8a: to -12.2 °C (10 °F) USDA Zone 8b: to -9.4 °C (15 °F) USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F) 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	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Old World tropics from the Philippines to Australia"
301	1995. Lorence, D.H./Flynn, T.W./Wagner, W.L.. Contributions to the flora of Hawai'i. III. New additions, range extensions, and rediscoveries of flowering plants. Bishop Museum Occasional Papers. 41: 19-58.	[Naturalized beyond native range? Yes] "Collections of Centratherum punctatum from Hawaii correspond to subsp. Punctatum in Kirkman's (1981) revision of the genus. This garden escape is a new naturalized record of the genus in the Hawaiian Islands. Native to South America, C. punctatum subsp. punctatum is distinguished from other Asteraceae in the archipelago by the following combination of characters: branching herb 0.3–0.6 m tall, probably annual; leaves with blades obovate-spathulate, 2–4 x 1–2 cm, margins coarsely serrate-dentate, densely glandular-punctate beneath, base decurrent onto petiole; heads terminal or terminal on lateral branches, broadly discoid, 1.5–2 cm in diam., involucral bracts (phyllaries) ovateoblong, membranaceous, green with margins and tips wine red, golden-glandular toward apex dorsally and on margins; rays absent, disc florets with corolla purple, externally glandular; achenes 1.5 mm long, longitudinally 9-ribbed, pappus whitish or pale brown, bristles linear, 3–4 mm long, antrorse setose, deciduous. Material examined. KAUAI: Koloa District, Papalina road, Kalaheo, in pasture near National Tropical Botanical Garden headquarters, 128 m (420 ft), 16 Nov 1989, T. Flynn & D. Lorence 3587 (BISH, F, PTBG, US); Waimea District, Kokee State Park, Kumuwela Ridge road, 1.2 miles from junction with Mohihi Road, 1120 m (3680 ft), 6 Nov 1989, T. Flynn et al. 3585 (BISH, PTBG, US)."
301	1997. Liogier, H.A.. Descriptive Flora of Puerto Rico and Adjacent Islands: Spermatophyta, Volume V. Acanthaceae to Compositae. La Editorial, UPR, San Juan, Puerto Rico	[Naturalized beyond native range? Yes] "Cultivated and naturalized, abundant in wet areas."

301	1999. Chen, S.-H./Wu, M.-J./Li, S.M.. Centratherum punctatum Cass. ssp. fruticosum, A Newly Naturalized Sunflower Species in Taiwan. Taiwania. 44(2): 299·305.	[Naturalized beyond native range? Yes] "Centratherum punctatum Cass. ssp. fruticosum. originally native to the Philippines, was recently found naturalized in ruderal sites of northern and eastern Taiwan. It represents a new record for both the species and the genus on this island. The present study provided taxonomic description. line drawings and other relevant information."
301	2004. Starr, F./Starr, K./Loope, L.L.. New plant records from the Hawaiian Archipelago. Bishop Museum Occasional Papers. 79: 20-30.	[Naturalized beyond native range? Yes] "Previously known from Kaua'i (Lorence et al., 1995) and Hawai'i (Oppenheimer, 2003), C. punctatum is now also known from Maui, growing in sidewalk cracks and other spots of opportunity in the town of Makawao. These collections represent a new island record for Maui."
301	2004. Wu, S.-H./Hsieh, C.-F./Rejmánek, M.. Catalogue of the Naturalized Flora of Taiwan. Taiwania. 49(1): 16-31.	[Naturalized beyond native range? Yes] Taiwan
301	2006. Starr, F./Starr, K./Loope, L.L.. New plant records from the Hawaiian Archipelago. Bishop Museum Occasional Papers. 87: 31-43.	[Naturalized beyond native range? Yes] "Centratherum punctatum subsp. Punctatum (larkdaisy) was previously reported from Kaua'i, Maui, and Hawai'i (Lorence et al., 1995; Oppenheimer, 2003; Starr et al., 2004). This weedy purple herb is now also know from Moloka'i, where it is scattered along Kamehameha Hwy on the East end of Moloka'i. Material examined. MOLOKA'I: East Moloka'i, Moakea, Kukumamalu Gulch, near Kuala, growing along side of Kamehameha Hwy., in association with Hypparhenia sp., 600 ft [182 m], 17 May 2005, Starr & Starr 050517-8."
301	2010. Starr, F./Starr, K./Loope, L.L.. New plant records from the Hawaiian Archepelago. Bishop Museum Occasional Papers. 107: 61-68.	[Naturalized beyond native range? Yes] "Centratherum punctatum subsp. punctatum (centratherum) was previously reported from Kaua'i, Moloka'i, Maui, and Hawai'i (Lorence et al. 1995; Oppenheimer 2003; Starr et al. 2004; Starr et al. 2006). This purple flowered plant grown as an ornamental is now also known from Lāna'i, where it was collected in Kapano Gulch, just outside of Lāna'I City. Material examined. LĀNA'I: Kapano Gulch, on side of dirt road, in association with Pittosporum viridiflorum and Falcataria moluccana, 450 m (1476 ft), 2 Apr 2007, Starr & Starr 070402-07."
301	2011. Gardener, M./Guézou, A./Atkinson, R./Buddenhagen, C.. CDF Checklist of Galapagos Introduced Plants. In: Bungartz, F. et al. (eds.). Charles Darwin Foundation Galapagos Species Checklist. Charles Darwin Foundation, Puerto Ayora, Galapagos http://www.	[Naturalized beyond native range? Yes] "Taxon status: Accepted name; taxon occurs in Galapagos. Syn.: Ampherephis aristata Kunth Origin: Introduced, Escaped. Galapagos Distribution: Isabela, San Cristóbal, Santa Cruz. References: Hokche, O. et al. (2008), Jørgensen, P.M. et al. (1999), Tropicos.org. et al. (2009)."
301	2012. Wagner, W.L./Herbst, D.R./Khan, N./Flynn, T.. Hawaiian Vascular Plant Updates: A Supplement to the Manual of the Flowering Plants of Hawai`i & Hawai`i's Ferns & Fern Allies. http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/supplement.htm	[Naturalized beyond native range? Yes] "newly naturalized (Kaua`i); new islands (Hawai`i, East Maui, Moloka`i, Lana`i)"
302	1999. Chen, S.-H./Wu, M.-J./Li, S.M.. Centratherum punctatum Cass. ssp. fruticosum, A Newly Naturalized Sunflower Species in Taiwan. Taiwania. 44(2): 299·305.	[Garden/amenity/disturbance weed? Yes] "Centratherum punctatum Cass, ssp. fruticosum is a native of the Philippines, In Hualien County, it was found along roadsides or waste lands…"
302	1999. Marenco, R.A./Santos, Á.M.B. Crop rotation reduces weed competition and increases chlorophyll concentration and yield of rice. Pesquisa Agropecuária Brasileira. 34(10): 1881-1887.	[Garden/amenity/disturbance weed? Yes] "A total of 35 weed types were recorded in the second crop. The most abundant weeds were Cyperus spp., Spigelia anthelmia L. and Turnera ulmifolia L. Less common species, grouped as "other species" for statistical analyses, included Indigofera hirsuta L., Mollugo verticillata L., Panicum hirtum Lam., Borreria verticillata (L.) Mey, Brachiaria plantaginea (Link) Mitchc., Cenchrus brownii R. & S., Centratherum punctatum Cass., …"
302	2003. Groves, R.H./Hosking, J.R./Batianoff, G.N. et al.. Weed categories for natural and agricultural ecosystem weed management. Bureau of Rural Sciences, Canberra	[Garden/amenity/disturbance weed? Yes] "Centratherum punctatum" … "Natural Ecosystems Rating = 3: Naturalised and known to be a minor problem warranting control at 4 or more locations within a State or Territory" [A naturalized weed of minor or unspecified impacts]
302	2006. Goosem, M.W./Turton, S.M.. Weed Incursions Along Roads & Powerlines in the Wet Tropics World Heritage Area. Cooperative Research Centre for Tropical Rainforest Ecology & Management. Rainforest CRC,, Cairns	[Garden/amenity/disturbance weed? Yes] "Table 1.2: Weed species recorded in the Chalumbin-Woree powerline clearing and road network." [Centratherum punctatum var. punctatum recorded as a weed along power lines in Australia]
302	2007. Lárez Rivas, A.. Keys to identify weeds associated with different plant crops in the Monagas State, Venezuela. II. Dicotyledons. Revista UDO Agrícola. 7 (1): 91-121.	[Garden/amenity/disturbance weed? Yes] "Three hundred and twelve angiosperm's species, registered as weed in some crops of the Monagas state, were taxonomically identified through the review of several scientific publications as well as by checking at the UOJ Herbarium's specimens and doing some field work." [Includes Centratherum punctatum]

302	2009. Isaac, W.-A.P./Brathwaite, R.A.I./Khan, A.. Weed Composition of Banana Fields in St. Vincent with Emphasis on the Occurrence of Commelina diffusa. World Journal of Agricultural Sciences. 5(S): 837-846.	[Garden/amenity/disturbance weed? Yes] "Table 1: Botanical and common names of all weeds recorded in the sampled banana orchards in Sl Vincent over two seasons." [Centratherum punctatum recorded as a weed, but no impacts were mentioned.]
302	2012. Hyde, M.A./Wursten, B.T./Ballings, P.. Flora of Zimbabwe: Species information: Centratherum punctatum subsp. Punctatum. http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=163540	[Garden/amenity/disturbance weed? Yes] "In waste places and disturbed ground."
303	1999. Marenco, R.A./Santos, Á.M.B. Crop rotation reduces weed competition and increases chlorophyll concentration and yield of rice. Pesquisa Agropecuária Brasileira. 34(10): 1881-1887.	[Agricultural/forestry/horticultural weed? Potentially] "A total of 35 weed types were recorded in the second crop. The most abundant weeds were Cyperus spp., Spigelia anthelmia L. and Turnera ulmifolia L. Less common species, grouped as "other species" for statistical analyses, included Indigofera hirsuta L., Mollugo verticillata L., Panicum hirtum Lam., Borreria verticillata (L.) Mey, Brachiaria plantaginea (Link) Mitchc., Cenchrus brownii R. & S., Centratherum punctatum Cass., …" [A weed of unspecified impacts]
303	2003. Groves, R.H./Hosking, J.R./Batianoff, G.N. et al.. Weed categories for natural and agricultural ecosystem weed management. Bureau of Rural Sciences, Canberra	[Agricultural/forestry/horticultural weed? No evidence from Australia] "Present in a State or Territory but not given a rating as an agricultural weed, either because it was not considered a problem or because it was not known to occur in agricultural areas at present."
303	2007. Lárez Rivas, A.. Keys to identify weeds associated with different plant crops in the Monagas State, Venezuela. II. Dicotyledons. Revista UDO Agrícola. 7 (1): 91-121.	[Agricultural/forestry/horticultural weed? Potentially] "Three hundred and twelve angiosperm's species, registered as weed in some crops of the Monagas state, were taxonomically identified through the review of several scientific publications as well as by checking at the UOJ Herbarium's specimens and doing some field work." [Includes Centratherum punctatum, but impacts are unspecified]
303	2009. Isaac, W.-A.P./Brathwaite, R.A.I./Khan, A.. Weed Composition of Banana Fields in St. Vincent with Emphasis on the Occurrence of Commelina diffusa. World Journal of Agricultural Sciences. 5(S): 837-846.	[Agricultural/forestry/horticultural weed? Potentially] "Table 1: Botanical and common names of all weeds recorded in the sampled banana orchards in Sl Vincent over two seasons." [Centratherum punctatum recorded as a weed, but no impacts were mentioned.]
304	2007. Randall, R.P.. Global Compendium of Weeds - Centratherum punctatum [Online Database]. http://www.hear.org/gcw/species/centratherum_punctatum/	[Environmental weed? No] Disturbance weed of unspecified impacts
304	2012. WRA Specialist. Personal Communication.	[Environmental weed? No] Disturbance weed of unspecified impacts
305	2007. Randall, R.P.. Global Compendium of Weeds - Centratherum intermedium [Online Database]. http://www.hear.org/gcw/species/centratherum_intermedium/	[Congeneric weed? Potentially] Centratherum intermedium listed as a weed of Vietnam
401	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Produces spines, thorns or burrs? No] "Herb, erect, to 50 cm high (20 in) with pubescent stems. Leaves simple, alternate, blade ovate to spoon-shaped, 2.5-8 cm long (1 - 3 1/2 in) with a winged petiole and toothed margins."
402	2012. San Marcos Growers. Products - Centratherum punctatum. http://www.smgrowers.com/products/plants/plantdisplay.asp?cat_id=8&plant_id=382&page=8	[Allelopathic? No evidence] "We first noted mention of this plant in Pacific Horticulture where an article in the Spring 1993 issue noted it as a good companion plant to roses and the Spring 1995 issue featured a picture of the plant growing as an understory to black bamboo. We grew this plant from 1996 to 2006 but discontinued because of lack of sales and its somewhat ephemeral nature in the garden." [
403	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Parasitic? No] "Herb, erect, to 50 cm high (20 in) with pubescent stems." [Asteraceae]
404	2011. Riet-Correa, F.. Poisoning by Plants, Mycotoxins and Related Toxins. CABI, Wallingford	[Unpalatable to grazing animals? No] "In Asteraceae, the widespread Centratherum punctatum (=C. brachylepis) affects the digestive system of cattle and goats." [Presumably browsed by cattle and coats]
405	2011. Riet-Correa, F.. Poisoning by Plants, Mycotoxins and Related Toxins. CABI, Wallingford	[Toxic to animals? Possibly] "In Asteraceae, the widespread Centratherum punctatum (=C. brachylepis) affects the digestive system of cattle and goats." [Effects on goats and cows not specified]
406	2012. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens? Unknown]

407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No] No evidence
407	2011. Pawar, N.K./Arumugam, N.. Leaf Extract of Centratherum punctatum Exhibits Antimicrobial, Antioxidant and Anti Proliferative Properties. Asian Journal of Pharmaceutical and Clinical Research. 4(3): 71-76.	[Causes allergies or is otherwise toxic to humans? No evidence] "Though a few cytotoxic compounds have been isolated and identified from Centratherum punctatum, it has not been proven to be a medicinal plant so far."
407	2012. San Marcos Growers. Products - Centratherum punctatum. http://www.smgrowers.com/products/plants/plantdisplay.asp?cat_id=8&plant_id=382&page=8	[Causes allergies or is otherwise toxic to humans? No] "A tender perennial to 1-2 feet tall by 2 feet wide with coarsely toothed heavily veined dark green leaves that smell of pineapple when crushed." … "The foliage is as softer and easier to eat than Pineapple Sage (Salvia elegans)."
408	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Creates a fire hazard in natural ecosystems? No] "Herb, erect, to 50 cm high (20 in) with pubescent stems. Leaves simple, alternate, blade ovate to spoon-shaped, 2.5-8 cm long (1 - 3 1/2 in) with a winged petiole and toothed margins." [No evidence, and unlikely given growth form]
409	2006. Kenny, J.. Flowers of Trinidad and Tobago. Prospect Press, Port of Spain	[Is a shade tolerant plant at some stage of its life cycle? No] "This species is a small spreading herb that tolerates a wide range of light and humidity."
409	2012. Dave's Gardern. PlantFiles: Brazilian Bachelor's Button, Brazilian Button Flower, Larkdaisy, Porcupine Flower - Centratherum intermedium. http://davesgarden.com/guides/pf/go/713/	[Is a shade tolerant plant at some stage of its life cycle? No] "Sun Exposure: Full Sun"
409	2012. Kartuz Greenhouses. Centratherum punctatum. http://www.kartuz.com/p/90218/Centratherum+punctatum.html	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Likes rich, moist soil in full sun, but can tolerate some shade and dryness."
410	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Tolerates a wide range of soil conditions? Probably Yes] "…thrives under sunny, dry conditions, and needs no special care."
411	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Climbing or smothering growth habit? No] "Herb, erect, to 50 cm high (20 in) with pubescent stems."
412	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Forms dense thickets? No] "Herb, erect, to 50 cm high (20 in) with pubescent stems. Leaves simple, alternate, blade ovate to spoon shaped, 2.5-8 cm long (1 - 3 1/2 in) with a winged petiole and toothed margins." [Growth habit suggests no]
412	2012. WRA Specialist. Personal Communication.	[Forms dense thickets? No] No evidence from literature in native or naturalized range
501	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Aquatic? No] "Herb, erect, to 50 cm high (20 in) with pubescent stems." [Terrestrial]
502	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Grass? No] Asteraceae
503	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Nitrogen fixing woody plant? No] Asteraceae
504	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] ""Herb, erect, to 50 cm high (20 in) with pubescent stems. Leaves simple, alternate, blade ovate to spoon-shaped, 2.5-8 cm long (1 - 3 1/2 in) with a winged petiole and toothed margins."
601	2012. WRA Specialist. Personal Communication.	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Produces viable seed? Yes] "Propagate by achenes."
602	2012. Dave's Gardern. PlantFiles: Brazilian Bachelor's Button, Brazilian Button Flower, Larkdaisy, Porcupine Flower - Centratherum intermedium. http://davesgarden.com/guides/pf/go/713/	[Produces viable seed? Yes] "Self-sows freely; deadhead if you do not want volunteer seedlings next season"
603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2012. WRA Specialist. Personal Communication.	[Self-compatible or apomictic? Unknown]

605	1975. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G. et al.. Flora of Panama. Part IX. Family 184. Compositae. Annals of the Missouri Botanical Garden. 62(4): 835-1321.	[Requires specialist pollinators? No evidence] "Inflorescences sessile, solitary, terminating the branches. Heads discoid with many florets; involucre broadly hemispherical, the outer involucral bracts 6-15, foliaceous, curved and spreading, the inner involucral bracts scariose, 4-6-seriate, narrowly deltoid, apically acute to obtuse, spinescent, the awns 1-4 mm long, awns and involucral bracts ciliolate; receptacle flat, alveolate, naked; corolla tube narrowly cylindric, expanding slightly at the apex, purple, 5-7 mm long, 5-lobed, the lobes linear to lanceolate, 1-2 mm long; stamens 5, the anthers 1-1.5 mm long, apically acute, obtusely sagittate at base; styles 6-7 mm long, bilobed, the lobes puberulous, 1-2 mm long, acute." [Structure suggests entomophily]
605	2012. Dave's Gardern. PlantFiles: Brazilian Bachelor's Button, Brazilian Button Flower, Larkdaisy, Porcupine Flower - Centratherum intermedium. http://davesgarden.com/guides/pf/go/713/	[Requires specialist pollinators? No] "This plant is attractive to bees, butterflies and/or birds"
606	1975. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G. et al.. Flora of Panama. Part IX. Family 184. Compositae. Annals of the Missouri Botanical Garden. 62(4): 835-1321.	[Reproduction by vegetative fragmentation? Unknown] "Herbs or low subshrubs to 5 dm tall, upright, sometimes from runners, single stemmed or many-branched, lignescent; branches terete, ascending, often striate, villous to tomentose." [Presence of runners suggests plant may be capable of some vegetative spread]
606	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Reproduction by vegetative fragmentation? Unknown] "Propagate by achenes." [No evidence]
607	2011. The New York Botanical Garden. Plants Records Manager's Choice: Centratherum punctatum. http://www.nybg.org/plant-talk/2011/03/around-the-garden/plants-records-managers-choice-centratherum-punctatum/	[Minimum generative time (years)? 1-2] "It is a one to two foot tall tender perennial that is often cultivated as an annual in northern climates and has a tendency to reseed itself annually into the garden in many parts of the world."
701	1999. Chen, S.-H./Wu, M.-J./Li, S.M.. Centratherum punctatum Cass. ssp. fruticosum, A Newly Naturalized Sunflower Species in Taiwan. Taiwania. 44(2): 299·305.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Probably Yes] "Centratherum punctatum Cass, ssp. fruticosum is a native of the Philippines, In Hualien County, it was found along roadsides or waste lands…" [Distribution suggests seeds may be inadvertently dispersed]
701	2006. Goosem, M.W./Turton, S.M.. Weed Incursions Along Roads & Powerlines in the Wet Tropics World Heritage Area. Cooperative Research Centre for Tropical Rainforest Ecology & Management. Rainforest CRC,, Cairns	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Probably Yes] "Table 1.2: Weed species recorded in the Chalumbin-Woree powerline clearing and road network." [Centratherum punctatum var. punctatum recorded as a weed along power lines in Australia]
701	2006. Kenny, J.. Flowers of Trinidad and Tobago. Prospect Press, Port of Spain	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Probably Yes] "It is found in open grassy areas and on road verges in forested areas."
702	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Propagules dispersed intentionally by people? Yes] "…widely if not commonly cultivated in the tropics as a garden herb for its light purple flower heads."
703	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Propagules likely to disperse as a produce contaminant? Possibly] "…truly cultivated in our gardens or merely tolerated where it happens to emerge as a weed. Certainly naturalized in Hawaii, it is apparently also deliberately grown (or at least no eradicated) by some gardeners." [Seeds could potentially be moved around if accidentally spread around with garden soil or produce]
704	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Propagules adapted to wind dispersal? Yes] "Fruit a pale linear achene covered with upward pointing bristles."
705	2000. Whistler, W.A.. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Propagules water dispersed? No] "Fruit a pale linear achene covered with upward pointing bristles." [Although possible, primarily adapted for wind dispersal]
706	1975. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G. et al.. Flora of Panama. Part IX. Family 184. Compositae. Annals of the Missouri Botanical Garden. 62(4): 835-1321.	[Propagules bird dispersed? Probably No] "Achenes narrowly turbinate, weakly ribbed, 1 2 mm long, ultimately papoose; pappus of deciduous filiform scales 1-2 mm long, antrorsely puberulent." [Not fleshy-fruited]
707	1975. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G. et al.. Flora of Panama. Part IX. Family 184. Compositae. Annals of the Missouri Botanical Garden. 62(4): 835-1321.	[Propagules dispersed by other animals (externally)? Unknown] "Achenes narrowly turbinate, weakly ribbed, 1 2 mm long, ultimately papoose; pappus of deciduous filiform scales 1-2 mm long, antrorsely puberulent." [Pappus bristles may allow achenes to adhere to fur]
708	2012. WRA Specialist. Personal Communication.	[Propagules survive passage through the gut? Unknown] Seeds unlikely to be consumed or internally dispersed

801	1975. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G. et al.. Flora of Panama. Part IX. Family 184. Compositae. Annals of the Missouri Botanical Garden. 62(4): 835-1321.	[Prolific seed production (>1000/m2)? Unknown, but seeds relatively small] "Herbs or low subshrubs to 5 dm tall, upright, sometimes from runners, single stemmed or many-branched, lignescent; branches terete, ascending, often striate, villous to tomentose." … "Inflorescences sessile, solitary, terminating the branches. Heads discoid with many florets; involucre broadly hemispherical, the outer involucral bracts 6-15, foliaceous, curved and spreading, the inner involucral bracts scariose, 4-6-seriate, narrowly deltoid, apically acute to obtuse, spinescent, the awns 1-4 mm long, awns and involucral bracts ciliolate; receptacle flat, alveolate, naked; corolla tube narrowly cylindric, expanding slightly at the apex, purple, 5-7 mm long, 5-lobed, the lobes linear to lanceolate, 1-2 mm long; stamens 5, the anthers 1-1.5 mm long, apically acute, obtusely sagittate at base; styles 6-7 mm long, bilobed, the lobes puberulous, 1-2 mm long, acute. Achenes narrowly turbinate, weakly ribbed, 1-2 mm long, ultimately epappose; pappus of deciduous filiform scales 1-2 mm long, antrorsely puberulent."
802	2012. Bioversity International. Species Compendium Database - Centratherum punctatum Cass.. http://www.bioversityinternational.org/databases/species_compendium_database/detail.html?tx_wfqbe_pi1[species_id]=20476	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "Storage behaviour category: Orthodox" [No evidence from field conditions]
803	2012. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information found on herbicide efficacy or chemical control of this species
804	2012. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown]
805	2012. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]