

Assessment date: 3/20/22 Prepared by Elise Williams

<b><i>Gomphocarpus physocarpus</i> (balloon plant)</b>		<b>Answer</b>	<b>Score</b>
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?	0	
1.03	Does the species have weedy races?	0	
2.01	Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	3	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	3	
2.03	Broad climate suitability (environmental versatility)	y	1
2.04	Native or naturalized in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	y	2
3.02	Garden/amenity/disturbance weed	y	2
3.03	Weed of agriculture	y	4
3.04	Environmental weed	y	4
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	n	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	y	1
4.05	Toxic to animals	y	1
4.06	Host for recognised pests and pathogens	n	0
4.07	Causes allergies or is otherwise toxic to humans	y	1
4.08	Creates a fire hazard in natural ecosystems	?	
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	?	
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	y	1
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1

6.03	Hybridizes naturally	y	1
6.04	Self-compatible or apomictic	n	-1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	?	
6.07	Minimum generative time (years)	?	
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y	1
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	y	1
7.04	Propagules adapted to wind dispersal	y	1
7.05	Propagules water dispersed	y	1
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	n	-1
8.01	Prolific seed production	?	
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	y	1
8.03	Well controlled by herbicides	?	
8.04	Tolerates, or benefits from, mutilation or cultivation	n	-1
8.05	Effective natural enemies present in U.S.	?	
<b>Total Score</b>		<b>24</b>	
<b>Implemented Pacific Second Screening</b>		<b>no</b>	
<b>Risk Assessment Results</b>		<b>reject</b>	

section	# questions answered	satisfy minimum?
A		11 yes
B		10 yes
C		19 yes
total		40 yes

	Evidence	Reference
1.01	No evidence of domestication	0
1.02	0	0
1.03	0	0
2.01	1-2. Present in USDA Plant Hardiness Zones 4b, 6a-14a: determined via computer analysis	1.GBIF.org (30 March 2022) GBIF Occurrence Download <a href="https://doi.org/10.15468/dl.fr6enu">https://doi.org/10.15468/dl.fr6enu</a> 2. Data Portal. 2022. <a href="https://sernecportal.org/portal/collections/listtabledisplay.php">https://sernecportal.org/portal/collections/listtabledisplay.php</a> . Accessed on March 31.
2.02	0	0
2.03	1-2. Present in Koppen-Geiger zones 1-9, 11-12, 14-15, and 25	1.GBIF.org (30 March 2022) GBIF Occurrence Download <a href="https://doi.org/10.15468/dl.fr6enu">https://doi.org/10.15468/dl.fr6enu</a> 2. Data Portal. 2022. <a href="https://sernecportal.org/portal/collections/listtabledisplay.php">https://sernecportal.org/portal/collections/listtabledisplay.php</a> . Accessed on March 31.
2.04	1-2. Present in zones with precipitation ranging from under 10 inches to over 100 inches/year	1.GBIF.org (30 March 2022) GBIF Occurrence Download <a href="https://doi.org/10.15468/dl.fr6enu">https://doi.org/10.15468/dl.fr6enu</a> 2. Data Portal. 2022. <a href="https://sernecportal.org/portal/collections/listtabledisplay.php">https://sernecportal.org/portal/collections/listtabledisplay.php</a> . Accessed on March 31.

2.05	<p>1. Introduced in Hawai'i and was collected outside cultivation in 1919 2. Introduced in Australia as an ornamental and collected in the wild in 1887 3. Introduced in Puerto Rico 4. Introduced to and naturalized in South Africa</p>	<p>1. Motooka P; Castro L; Nelson D; Nagai G; Ching L, 2003. Weeds of Hawaii's Pastures and Natural Areas; an identification and management guide. Manoa, Hawaii, USA: College of Tropical Agriculture and Human Resources, University of Hawaii as cited in Rojas-Sandoval, J., &amp; Acevedo-Rodríguez, P. (2014, June 18). <i>Gomphocarpus physocarpus</i> (balloon cotton bush). CABI: Invasive Species Compendium. Retrieved March 20, 2022, from <a href="https://www.cabi.org/isc/datasheet/114618#tocontributors">https://www.cabi.org/isc/datasheet/114618#tocontributors</a> 2. Council of Heads of Australasian Herbaria, 2014. Australia's virtual herbarium, Australia. <a href="http://avh.ala.org.au">http://avh.ala.org.au</a> as cited in Rojas-Sandoval, J., &amp; Acevedo-Rodríguez, P. (2014, June 18). <i>Gomphocarpus physocarpus</i> (balloon cotton bush). CABI: Invasive Species Compendium. Retrieved March 20, 2022, from <a href="https://www.cabi.org/isc/datasheet/114618#tocontributors">https://www.cabi.org/isc/datasheet/114618#tocontributors</a> 3. Rojas-Sandoval, J., &amp; Acevedo-Rodríguez, P. (2014, June 18). <i>Gomphocarpus physocarpus</i> (balloon cotton bush). CABI: Invasive Species Compendium. Retrieved March 20, 2022, from <a href="https://www.cabi.org/isc/datasheet/114618#tocontributors">https://www.cabi.org/isc/datasheet/114618#tocontributors</a> 4. Notten, A. (2010, January). <i>Gomphocarpus physocarpus</i>   PlantZAfrica. South African National Biodiversity Institute. Retrieved March 26, 2022, from <a href="http://pza.sanbi.org/gomphocarpus-physocarpus">http://pza.sanbi.org/gomphocarpus-physocarpus</a></p>
3.01	<p>1. Widely naturalized in Australia and other Old World tropic and subtropics 2. Naturalized in South Africa 3. Considered to be widely naturalized and most common in eastern parts of Australia, and is "very common in the coastal and sub-coastal districts of central and southern Queensland and in the north-eastern corner of New South Wales." Is also naturalized in Mauritius, India, Sri Lanka, Hong Kong, Hawai'i, New Caledonia, the Caribbean, and "beyond its native range in Africa"</p>	<p>1. Forster, P. I. (1994). Diurnal Insects Associated with the Flowers of <i>Gomphocarpus physocarpus</i> E. Mey. (Asclepiadaceae), an Introduced Weed in Australia. <i>Biotropica</i>, 26(2), 214–217. <a href="https://doi.org/10.2307/2388811">https://doi.org/10.2307/2388811</a> 2. Notten, A. (2010, January). <i>Gomphocarpus physocarpus</i>   PlantZAfrica. South African National Biodiversity Institute. Retrieved March 26, 2022, from <a href="http://pza.sanbi.org/gomphocarpus-physocarpus">http://pza.sanbi.org/gomphocarpus-physocarpus</a> 3. Weeds of Australia. (n.d.). <i>Gomphocarpus cancellatus</i>. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm</a></p>

3.02	<p>1. Grows on roadsides and riverbanks in Australia and is considered a weed of said areas 2. Grows on roadsides and disturbed areas in South Africa 3. Is considered a weed that is a "considerable management problem" in South Australia</p>	<p>1. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a> 2. Notten, A. (2010, January). Gomphocarpus physocarpus   PlantZAfrica. South African National Biodiversity Institute. Retrieved March 26, 2022, from <a href="http://pza.sanbi.org/gomphocarpus-physocarpus">http://pza.sanbi.org/gomphocarpus-physocarpus</a> 3. Weeds of Australia. (n.d.). Gomphocarpus cancellatus. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm</a></p>
3.03	<p>1. Is a weed of plantation crops in Australia 2. Weed of pastures in Australia 3. Weed of plantation crops such as sugar cane 4. "may also reduce the productivity of pastures"</p>	<p>1. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a> 2. Forster, P. I. (1994). Diurnal Insects Associated with the Flowers of Gomphocarpus physocarpus E. Mey. (Asclepiadaceae), an Introduced Weed in Australia. <i>Biotropica</i>, 26(2), 214–217. <a href="https://doi.org/10.2307/2388811">https://doi.org/10.2307/2388811</a> 3-4. Weeds of Australia. (n.d.). Gomphocarpus cancellatus. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm</a></p>
3.04	<p>1. Regarded as an environmental weed in Queensland, Australia 2. considered an environmental weed that primarily affects "lowland dry forests, coastal forests and wetlands" 3. Is considered a weed that is a "considerable management problem" in South Australia</p>	<p>1. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a> 2. Rojas-Sandoval, J., &amp; Acevedo-Rodríguez, P. (2014, June 18). Gomphocarpus physocarpus (balloon cotton bush). CABI: Invasive Species Compendium. Retrieved March 20, 2022, from <a href="https://www.cabi.org/isc/datasheet/114618#tocontributors">https://www.cabi.org/isc/datasheet/114618#tocontributors</a> 3. Weeds of Australia. (n.d.). Gomphocarpus cancellatus. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm</a></p>

3.05	1-2. Gomphocarpus cancellatus is an environmental weed in South Australia, invading both waste spaces and conservation areas and is a "considerable management problem" in various conservation locations	1.Weeds of Australia. (n.d.). Gomphocarpus cancellatus. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_cancellatus.htm</a> 2.Blackwood Biosecurity. (n.d.). Cotton Bush. Retrieved April 27, 2022, from <a href="https://www.blackwoodbiosecurity.org.au/cotton-bush">https://www.blackwoodbiosecurity.org.au/cotton-bush</a>
4.01	1-2. Plant description has no mention of thorns on seed or plant	1. Notten, A. (2010, January). Gomphocarpus physocarpus   PlantZAfrica. South African National Biodiversity Institute. Retrieved March 26, 2022, from <a href="http://pza.sanbi.org/gomphocarpus-physocarpus">http://pza.sanbi.org/gomphocarpus-physocarpus</a> 2.Wagner, W. L., Herbst, D. R., & Sohmer, S. H. (1999). Manual of the Flowering Plants of Hawaii: Revised Edition. University of Hawai'i Press. <a href="https://books.google.com/books?id=O54BFAAAQBAJ">https://books.google.com/books?id=O54BFAAAQBAJ</a>
4.02	1. No mention of G. physocarpus being allelopathic in scientific literature	0
4.03	1-2. Plant does not belong to a parasitic family	1. Nickrent, D. (2020b, November 15). Parasitic Plant Classification. Parasitic Plant Connection. <a href="https://parasiticplants.siu.edu/ListParasites.html">https://parasiticplants.siu.edu/ListParasites.html</a> 2.Walker, R. (2012, March 5). Parasitic Plants Database. Parasitic Plants Database. Retrieved April 27, 2022, from <a href="http://www.omnisterra.com/bot/pp_home.cgi">http://www.omnisterra.com/bot/pp_home.cgi</a>
4.04	1. Livestock avoid the plant unless severely starving 2. Plant is widespread in and considered a nuisance in pastures	1. Motooka, P., Castro, L., Nelson, D., Nagai, G., & Ching, L. (2014). Weeds of Hawai'i's Pastures and Natural Areas: An Identification and Management Guide by Motooka, Philip, Castro, Luisa, Nelson, Duane, Nagai, Guy, Ching, Lincoln (May 30, 2014) Paperback. College Tropical Agriculture and Human Resour. 2.2.Forster, P. I. (1994). Diurnal Insects Associated with the Flowers of Gomphocarpus physocarpus E. Mey. (Asclepiadaceae), an Introduced Weed in Australia. Biotropica, 26(2), 214–217. <a href="https://doi.org/10.2307/2388811">https://doi.org/10.2307/2388811</a>
4.05	1-2. Poisonous for livestock if ingested	1.Notten, A. (2010, January). Gomphocarpus physocarpus   PlantZAfrica. South African National Biodiversity Institute. Retrieved March 26, 2022, from <a href="http://pza.sanbi.org/gomphocarpus-physocarpus">http://pza.sanbi.org/gomphocarpus-physocarpus</a> 2.Kelch, D. (2019, August 5). Balloon Plant   Asclepias physocarpa. Pest Rating Proposals and Final Ratings. <a href="https://blogs.cdfa.ca.gov/Section3162/?p=4196">https://blogs.cdfa.ca.gov/Section3162/?p=4196</a>
4.06	Species is not known to be a host for specific recognized pests and pathogens	0

4.07	<p>1. Poisonous to humans 2. "All parts of this plant exude milky white latex that is mildly poisonous if ingested." 3. poisonous to livestock and humans</p>	<p>1. Notten, A. (2010, January). Gomphocarpus physocarpus   PlantZAfrica. South African National Biodiversity Institute. Retrieved March 26, 2022, from <a href="http://pza.sanbi.org/gomphocarpus-physocarpus">http://pza.sanbi.org/gomphocarpus-physocarpus</a></p> <p>2. Mahr, S. (no date). Balloon Plant, Gomphocarpus physocarpus. University of Wisconsin Madison Extension Service Document. Accessed via: <a href="https://hort.extension.wisc.edu/articles/balloon-plant-gomphocarpus-physocarpus/">https://hort.extension.wisc.edu/articles/balloon-plant-gomphocarpus-physocarpus/</a></p> <p>3. Weeds of Australia Factsheet. Accessed via: <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm</a></p>
4.08	<p>1. "Hot fire will kill mature plants and can destroy soil stored seed 2. "Larger infestations are best dealt with by a combination of spraying, slashing, burning, and pasture management"</p>	<p>1. Brown, K.L. and Bettink, K.A. (2009–) Swan Weeds: Management Notes, Florabase — The Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <a href="https://florabase.dpaw.wa.gov.au/projects/swanweeds/">https://florabase.dpaw.wa.gov.au/projects/swanweeds/</a></p> <p>2. Department of Primary Industries and Regional Development. (2017, July 31). Narrow leaf cotton bush: what you should know   Agriculture and Food. Narrow Leaf Cotton Bush: What You Should Know. Retrieved May 2, 2022, from <a href="https://www.agric.wa.gov.au/declared-plants/narrow-leaf-cotton-bush-what-you-should-know">https://www.agric.wa.gov.au/declared-plants/narrow-leaf-cotton-bush-what-you-should-know</a></p>
4.09	<p>1. Requires full sun to partial shade 2. Prefers full sun but can grow in partial shade</p>	<p>1. Dave's Garden. (n.d.). PlantFiles: Gomphocarpus Species, Balloonplant, Cotton-Bush, Hairy Balls, Giant Swan Milkweed. Retrieved March 26, 2022, from <a href="https://davesgarden.com/guides/pf/go/61453/#b">https://davesgarden.com/guides/pf/go/61453/#b</a></p> <p>2. <a href="https://hort.extension.wisc.edu/articles/balloon-plant-gomphocarpus-physocarpus/#:~:text=Gomphocarpus%20prefers%20full%20sun%20and,if%20grown%20in%20partial%20shade.">https://hort.extension.wisc.edu/articles/balloon-plant-gomphocarpus-physocarpus/#:~:text=Gomphocarpus%20prefers%20full%20sun%20and,if%20grown%20in%20partial%20shade.</a></p>

4.10	1. Occurrence of <i>G. physocarpus</i> in areas with Histisol soil in the US 2-3. Prefers sandy, well-drained soil	<p>1. United States Department of Agriculture. (n.d.). Distribution Maps of Dominant Soil Orders   NRCS Soils. Natural Resources Conservation Service Soils. Retrieved May 2, 2022, from <a href="https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/class/maps/?cid=nrcs142p2_053589">https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/class/maps/?cid=nrcs142p2_053589</a></p> <p>2. Mahr, S. (n.d.). Balloon Plant, <i>Gomphocarpus physocarpus</i>. Wisconsin Horticulture. Retrieved May 2, 2022, from <a href="https://hort.extension.wisc.edu/articles/balloon-plant-gomphocarpus-physocarpus/#:%7E:text=Gomphocarpus%20prefers%20full%20sun%20and,if%20grown%20in%20partial%20shade">https://hort.extension.wisc.edu/articles/balloon-plant-gomphocarpus-physocarpus/#:%7E:text=Gomphocarpus%20prefers%20full%20sun%20and,if%20grown%20in%20partial%20shade</a></p> <p>3. Gardenia. (n.d.). <i>Asclepias physocarpus</i> (Balloon Plant). Gardenia.Net. Retrieved May 2, 2022, from <a href="https://www.gardenia.net/plant/asclepias-physocarpus">https://www.gardenia.net/plant/asclepias-physocarpus</a></p>
4.11	1. "competition-smothering" 2-3. forms dense infestations and replaces native species	<p>1. Rojas-Sandoval, J., &amp; Acevedo-Rodríguez, P. (2014, June 18). <i>Gomphocarpus physocarpus</i> (balloon cotton bush). CABI: Invasive Species Compendium. Retrieved March 20, 2022, from <a href="https://www.cabi.org/isc/datasheet/114618#tocontributors">https://www.cabi.org/isc/datasheet/114618#tocontributors</a></p> <p>2. Weeds of Australia. (2016). <i>Gomphocarpus physocarpus</i>. <i>Gomphocarpus Physocarpus</i> E. Mey. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm</a></p> <p>3. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a></p>
4.12	1-2. forms dense infestations and replaces native species	<p>1. Weeds of Australia. (2016). <i>Gomphocarpus physocarpus</i>. <i>Gomphocarpus Physocarpus</i> E. Mey. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm</a></p> <p>2. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a></p>
5.01	Plant is not aquatic	0



5.02	1-2. Family: Asclepiadaceae	1. United States Department of Agriculture. (n.d.). USDA Plants Database. <i>Asclepias Physocarpa</i> (E. Mey.) Schltr. Retrieved March 20, 2022, from <a href="https://plants.usda.gov/home/plantProfile?symbol=A SPH2">https://plants.usda.gov/home/plantProfile?symbol=A SPH2</a> 2. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a>
5.03	1-2. Family: Asclepiadaceae	1. United States Department of Agriculture. (n.d.). USDA Plants Database. <i>Asclepias Physocarpa</i> (E. Mey.) Schltr. Retrieved March 20, 2022, from <a href="https://plants.usda.gov/home/plantProfile?symbol=A SPH2">https://plants.usda.gov/home/plantProfile?symbol=A SPH2</a> 2. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a>
5.04	Plant is not a geophyte	0
6.01	No evidence of substantial reproductive failure in native habitat	0
6.02	1. Seeds viable for 2-3 years 2. "100% of seeds viable at 1 year 9 months in red clay loam and sandy loam"	1. sowtrueseed.com. (n.d.). Milkweed Seeds - Balloon. Sow True Seed. <a href="https://sowtrueseed.com/products/balloon-milkweed">https://sowtrueseed.com/products/balloon-milkweed</a> 2. Long, R., Panetta, F., Steadman, K., Probert, R., Bekker, R., Brooks, S., & Adkins, S. (2008). Seed Persistence in the Field May Be Predicted by Laboratory-Controlled Aging. <i>Weed Science</i> , 56(4), 523-528. doi:10.1614/WS-07-189.1
6.03	1. Hybrids between <i>G. physocarpus</i> and <i>G. fruticosus</i> are commonly encountered in Australia and Africa 2. Hybrids found in Africa	1. Forster, P. I. (1994). Diurnal Insects Associated with the Flowers of <i>Gomphocarpus physocarpus</i> E. Mey. ( <i>Asclepiadaceae</i> ), an Introduced Weed in Australia. <i>Biotropica</i> , 26(2), 214–217. <a href="https://doi.org/10.2307/2388811">https://doi.org/10.2307/2388811</a> 2. Bullock, A. A. (1952). Notes on African <i>Asclepiadaceae</i> . <i>I. Kew Bulletin</i> , 7(3), 405–426. <a href="https://doi.org/10.2307/4109343">https://doi.org/10.2307/4109343</a>

6.04	<p>1. "Plants are nonclonal and self-incompatible" 2. Plant is self-incompatible 3. "Only cross-pollinated flowers wet fruit indicating that plants in the study population are genetically self-incompatible"</p>	<p>1. Forster, P. I. (1994). Diurnal Insects Associated with the Flowers of <i>Gomphocarpus physocarpus</i> E. Mey. (Asclepiadaceae), an Introduced Weed in Australia. <i>Biotropica</i>, 26(2), 214–217.  <a href="https://doi.org/10.2307/2388811">https://doi.org/10.2307/2388811</a> 2. Notten, A. (2010, January). <i>Gomphocarpus physocarpus</i>   PlantZAfrica. South African National Biodiversity Institute. Retrieved March 26, 2022, from <a href="http://pza.sanbi.org/gomphocarpus-physocarpus">http://pza.sanbi.org/gomphocarpus-physocarpus</a> 3. COOMBS, G., PETER, C. I., &amp; JOHNSON, S. D. (2009). A test for Allee effects in the self-incompatible wasp-pollinated milkweed <i>Gomphocarpus physocarpus</i>. <i>Austral Ecology</i>, 34(6), 688–697.  <a href="https://doi.org/10.1111/j.1442-9993.2009.01976.x">https://doi.org/10.1111/j.1442-9993.2009.01976.x</a></p>
6.05	<p>1. Pollinated by various species belonging to the insect families Hymenoptera, Diptera, and Coleoptera 2. "A diverse range of insects are responsible for pollination in different species of Asclepiadaceae, but the primary pollinators are Hymenoptera, Diptera, Lepidoptera with minor contributions by Coleoptera"</p>	<p>1. COOMBS, G., PETER, C. I., &amp; JOHNSON, S. D. (2009). A test for Allee effects in the self-incompatible wasp-pollinated milkweed <i>Gomphocarpus physocarpus</i>. <i>Austral Ecology</i>, 34(6), 688–697.  <a href="https://doi.org/10.1111/j.1442-9993.2009.01976.x">https://doi.org/10.1111/j.1442-9993.2009.01976.x</a> 2. Forster, P. I. (1994). Diurnal Insects Associated with the Flowers of <i>Gomphocarpus physocarpus</i> E. Mey. (Asclepiadaceae), an Introduced Weed in Australia. <i>Biotropica</i>, 26(2), 214–217.  <a href="https://doi.org/10.2307/2388811">https://doi.org/10.2307/2388811</a></p>
6.06	<p>Evidence suggests that the plant can be propagated vegetatively in a horticultural setting; there is a lack of data suggesting this is possible outside a horticultural setting; 1-2. Plants can be propagated vegetatively.</p>	<p>1. Dave's Garden. (n.d.). PlantFiles: <i>Gomphocarpus</i> Species, Balloonplant, Cotton-Bush, Hairy Balls, Giant Swan Milkweed. Retrieved March 26, 2022, from <a href="https://davesgarden.com/guides/pf/go/61453/#b">https://davesgarden.com/guides/pf/go/61453/#b</a> 2. Gomez, T. (2022, March 19). <i>Gomphocarpus Physocarpus- Giant Swan Plant Milkweed</i>. Monarch Butterfly Garden- Bring Home the Butterflies. <a href="https://monarchbutterflygarden.net/milkweed-plant-seed-resources/gomphocarpus-physocarpus/">https://monarchbutterflygarden.net/milkweed-plant-seed-resources/gomphocarpus-physocarpus/</a></p>
6.07	No evidence	0

7.01	<p>1-2. Grows on roadsides, riverbanks, and waste areas 3. Seeds can be spread through mud attached to vehicles</p>	<p>1. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a> 2. Weeds of Australia. (2016). <i>Gomphocarpus physocarpus</i>. <i>Gomphocarpus Physocarpus</i> E. Mey. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm</a> 3. Weeds of Australia. (2016). <i>Gomphocarpus physocarpus</i>. <i>Gomphocarpus Physocarpus</i> E. Mey. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm</a></p>
7.02	<p>1. Plant is often planted as an ornamental and medicinal plant 2. Plants and seeds for sale on Etsy 3. Introduced as a fiber crop on O'ahu</p>	<p>1. Rojas-Sandoval, J., &amp; Acevedo-Rodríguez, P. (2014, June 18). <i>Gomphocarpus physocarpus</i> (balloon cotton bush). <i>CABI: Invasive Species Compendium</i>. Retrieved March 20, 2022, from <a href="https://www.cabi.org/isc/datasheet/114618#tocontributors">https://www.cabi.org/isc/datasheet/114618#tocontributors</a> 2. Etsy. (n.d.). <i>Gomphocarpus physocarpus</i>. Retrieved March 20, 2022, from <a href="https://www.etsy.com/search?q=Gomphocarpus%20physocarpus">https://www.etsy.com/search?q=Gomphocarpus%20physocarpus</a> 3. Wagner, W. L., Herbst, D. R., &amp; Sohmer, S. H. (1999). <i>Manual of the Flowering Plants of Hawaii: Revised Edition</i>. University of Hawai'i Press. <a href="https://books.google.com/books?id=Q54BEAAAQBAJ">https://books.google.com/books?id=Q54BEAAAQBAJ</a></p>
7.03	<p>1-3. "There is also the risk of introductions of seeds as contaminants of agricultural produce (e.g. fodder) and soil or in mud attached to animals, machinery and other vehicles"</p>	<p>1. Queensland Department of Primary Industries and Fisheries as cited in Rojas-Sandoval, J., &amp; Acevedo-Rodríguez, P. (2014, June 18). <i>Gomphocarpus physocarpus</i> (balloon cotton bush). <i>CABI: Invasive Species Compendium</i>. Retrieved March 20, 2022, from <a href="https://www.cabi.org/isc/datasheet/114618#tocontributors">https://www.cabi.org/isc/datasheet/114618#tocontributors</a> 2. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a> 3. Weeds of Australia. (2016). <i>Gomphocarpus physocarpus</i>. <i>Gomphocarpus Physocarpus</i> E. Mey. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm</a></p>

7.04	1. Seeds are "topped with a tuft of silky-white hairs about 3cm long" 2. "the seeds are dispersed by wind, aided by the tuft of silky hairs attached to each seed"	1. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a> 2. Notten, A. (2010, January). Gomphocarpus physocarpus   PlantZAfrica. South African National Biodiversity Institute. Retrieved March 26, 2022, from <a href="http://pza.sanbi.org/gomphocarpus-physocarpus">http://pza.sanbi.org/gomphocarpus-physocarpus</a>
7.05	1. "Seeds are most commonly spread by wind and water"	1. Weeds of Australia. (2016). Gomphocarpus physocarpus. Gomphocarpus Physocarpus E. Mey. Retrieved April 27, 2022, from <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/gomphocarpus_physocarpus.htm</a> 2. Brisbane City Council. (n.d.). Balloon Cotton Bush   Weed Identification – Brisbane City Council. Brisbane City Council Weed Identification Tool. Retrieved March 20, 2022, from <a href="https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush">https://weeds.brisbane.qld.gov.au/weeds/balloon-cotton-bush</a>
7.06	No mention of dispersal by bird, seed does not have fleshy fruit or barbs	0
7.07	No mention of dispersal by animal, seed does not have a mechanism of attachment	0
7.08	No mention of seed being eaten by animals in literature, seed does not have a fleshy fruit	0
8.01	1. "A single pod contains about 200 seeds which, when ripe, are scattered by the wind"	1. Haselwood, E.L., Motter, G.G., & Hirano, R.T. (eds.). 1983. Handbook of Hawaiian Weeds. University of Hawaii Press, Honolulu, HI
8.02	1. Seeds viable for 2-3 years 2. "100% of seeds viable at 1 year 9 months in red clay loam and sandy loam"	1. sowtrueseed.com. (n.d.). Milkweed Seeds - Balloon. Sow True Seed. <a href="https://sowtrueseed.com/products/balloon-milkweed">https://sowtrueseed.com/products/balloon-milkweed</a> 2. Long, R., Panetta, F., Steadman, K., Probert, R., Bekker, R., Brooks, S., & Adkins, S. (2008). Seed Persistence in the Field May Be Predicted by Laboratory-Controlled Aging. Weed Science, 56(4), 523-528. doi:10.1614/WS-07-189.1

8.03	<p>1. Foliar spray can be used to control the plant  2. Mature plants are tolerant of herbicides</p>	<p>1. Logan City Council. (n.d.). Balloon Cotton Bush –. <a href="https://www.logan.qld.gov.au/balloon-cotton-bush">https://www.logan.qld.gov.au/balloon-cotton-bush</a>  2. Motooka, P., Castro, L., Nelson, D., Nagai, G., &amp; Ching, L. (2014). Weeds of Hawai'i's Pastures and Natural Areas: An Identification and Management Guide by Motooka, Philip, Castro, Luisa, Nelson, Duane, Nagai, Guy, Ching, Lincoln (May 30, 2014) Paperback. College Tropical Agriculture and Human Resour.</p>
8.04	<p>1. Goats can be used as a control for G. physocarpus  2. "Larger infestations are best delt with by a combination of spraying, slashing, burning, and pasture management"</p>	<p>1. Motooka, P., Castro, L., Nelson, D., Nagai, G., &amp; Ching, L. (2014). Weeds of Hawai'i's Pastures and Natural Areas: An Identification and Management Guide by Motooka, Philip, Castro, Luisa, Nelson, Duane, Nagai, Guy, Ching, Lincoln (May 30, 2014) Paperback. College Tropical Agriculture and Human Resour.  2. Department of Primary Industries and Regional Development. (2017, July 31). Narrow leaf cotton bush: what you should know   Agriculture and Food. Narrow Leaf Cotton Bush: What You Should Know. Retrieved May 2, 2022, from <a href="https://www.agric.wa.gov.au/declared-plants/narrow-leaf-cotton-bush-what-you-should-know">https://www.agric.wa.gov.au/declared-plants/narrow-leaf-cotton-bush-what-you-should-know</a></p>
8.05	0	0