

Assessment date 25 June 2015

<i>Senna pendula var glabrata</i> ALL ZONES		Answer	Score
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to 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	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
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	unk	
3.04	Environmental weed	y	4
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	unk	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	y	1
4.05	Toxic to animals	unk	0
4.06	Host for recognised pests and pathogens	unk	0
4.07	Causes allergies or is otherwise toxic to humans	unk	0
4.08	Creates a fire hazard in natural ecosystems	unk	0
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.	unk	0
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	y	1
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	unk	-1
6.04	Self-compatible or apomictic	unk	-1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	n	-1
6.07	Minimum generative time (years)	unk	-1
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	n	-1
7.05	Propagules water dispersed	y	1
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	y	1
7.08	Propagules dispersed by other animals (internally)	y	1
8.01	Prolific seed production	y	1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	y	1
8.03	Well controlled by herbicides	y	-1
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05		?	
Total Score			21
Implemented Pacific Second Screening			no
Risk Assessment Results			High

section	# questions answered	satisfy minimum?
A		10 yes
B		6 yes
C		20 yes
total		36 yes

	Reference	Source data
1.01		Cultivated, but no evidence of selection for reduced weediness
1.02		Skip to 2.01
1.03		Skip to 2.01
2.01	1. PERAL NAPPFAST Global Plant Hardiness. http://www.nappfast.org/Plant_hardiness/2012/PHZ%20update201230%20yr%20%20300dpi.tif (Accessed: 2 August 2015) 2. Dave's Garden. http://davesgarden.com/guides/pf/go/142451/ (Accessed: 2 August 2015)	No computer analysis was performed. 1. Florida North Zone: Hardiness zones 8 and 9. Central Zone: Hardiness zones 9 and 10. South Zone: Hardiness zone 10. 2. Plant found in USDA hardiness zones 8b through 11.
2.02		
2.03	1. The University of Melbourne. Köppen-Geiger Climate Map of the World. http://people.eng.unimelb.edu.au/mpeel/koppen.html (Accessed: 2 August 2015) 2. USDA Germplasm Resources Information Network. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?404359 (Accessed: 2 August 2015) 3. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/senna%20pendula.pdf (Accessed: 2 August 2015) 4. USDA Plants Database. http://plants.usda.gov/core/profile?symbol=SEPEG (Accessed: 2 August 2015)	1. Found in the following Köppen-Geiger Climate Zones: Af, Am, Aw, BWh, BWk, BSh, BSk, Csa, Csb, Cwa, Cwb, and Cfa. 2. Native to Brazil and Paraguay. 3. Native to Brazil, Peru, Bolivia, Paraguay, and Argentina. Naturalized in the Bahamas, Florida, Alabama, and Mississippi. 4. Native to Florida, Texas, Arizona, and California.
2.04	1. Climate Charts. World Climate Maps. http://www.climate-charts.com/World-Climate-Maps.html#rain (Accessed: 2 August 2015) 2. USDA Germplasm Resources Information Network. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?404359 (Accessed: 2 August 2015) 3. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/senna%20pendula.pdf (Accessed: 2 August 2015) 4. USDA Plants Database. http://plants.usda.gov/core/profile?symbol=SEPEG (Accessed: 2 August 2015)	1. Found in areas with rainfall within these ranges. 2. Native to Brazil and Paraguay. 3. Native to Brazil, Peru, Bolivia, Paraguay, and Argentina. Naturalized in the Bahamas, Florida, Alabama, and Mississippi. 4. Native to Florida, Texas, Arizona, and California.
2.05	1. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/senna%20pendula.pdf (Accessed: 2 August 2015) 2. Australia's Tropical Rainforest Plants. http://keys.trin.org.au/key-server/data/0e0f0504-0103-430d-8004-060d07080d04/media/Html/taxon/Senna_pendula_var._glabrata.htm (Accessed: 3 August 2015)	1. Naturalized in the Bahamas, Florida, Alabama, and Mississippi. 2. Introduced to Australia and later naturalized
3.01	1. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/senna%20pendula.pdf (Accessed: 2 August 2015) 2. Australia's Tropical Rainforest Plants. http://keys.trin.org.au/key-server/data/0e0f0504-0103-430d-8004-060d07080d04/media/Html/taxon/Senna_pendula_var._glabrata.htm (Accessed: 3 August 2015)	1. Naturalized in the Bahamas, Florida, Alabama, and Mississippi. 2. Introduced to Australia and later naturalized
3.02	1. Fraser Coast Regional Council. http://www.frasercoast.qld.gov.au/en_US/weed-busting/-/asset_publisher/4jRk/content/easter-cassia-senna-pendula-var-glabrata (Accessed: 2 August 2015) 2. Queensland Government Department of Agriculture and Fisheries. https://www.daf.qld.gov.au/plants/weeds-pest-animals-ants/weeds/a-z-listing-of-weeds/photo-guide-to-weeds/easter-cassia (Accessed: 2 August 2015)	1. "Easily colonises disturbed areas and invades bushland." 2. "The seedlings come up in bushland, disturbed areas and road sides."
3.03		No evidence

3.04	1. Queensland Government. http://keyserver.lucidcentral.org/weeds/data/080c0106-040c-4508-8300-0b0a06060e01/media/Html/Senna_pendula_var._glabrata.htm (Accessed: 2 August 2015) 2. Queensland Government Department of Agriculture and Fisheries. https://www.daf.qld.gov.au/plants/weeds-pest-animals-ants/weeds/a-z-listing-of-weeds/photo-guide-to-weeds/easter-cassia (Accessed: 2 August 2015) 3. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/senna%20pendula.pdf (Accessed: 2 August 2015)	1. "Easter cassia (<i>Senna pendula</i> var. <i>glabrata</i>) is regarded as a significant environmental weed in New South Wales and Queensland. It was recently listed as a priority environmental weed in two Natural Resource Management regions, and is actively managed by community groups in Queensland." 2. "Impacts: Environmental: Invades disturbed or modified areas. Smothers native vegetation." 3. "Displaces native vegetation in disturbed and undisturbed areas of Florida's tropical hammocks, coastal strands, and canal banks"
3.05	1. Global Compendium of Weeds. http://www.hear.org/gcw/scientificnames/scinames.htm (Accessed: 3 August 2015)	1. Several taxa with similar biology are listed as weeds. For example, <i>Senna occidentalis</i> is listed as an agricultural weed, environmental weed, and noxious weed. <i>Senna septemtrionalis</i> is listed as an agricultural weed and environmental weed. <i>Senna surattensis</i> is listed as an agricultural weed and an environmental weed. <i>Senna tora</i> is listed as an agricultural weed, environmental weed, and noxious weed.
4.01	1. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/senna%20pendula.pdf (Accessed: 2 August 2015) 2. Queensland Government. http://keyserver.lucidcentral.org/weeds/data/080c0106-040c-4508-8300-0b0a06060e01/media/Html/Senna_pendula_var._glabrata.htm (Accessed: 2 August 2015)	1&2. Features not in the description of the plant
4.02		No evidence
4.03		No evidence
4.04	1. Livestock Research for Rural Development. http://www.lrrd.org/lrrd21/10/simo21170.htm (Accessed: 3 August 2015)	1. Chickens did not eat --- no other evidence of consumption by livestock
4.05		No evidence
4.06		No evidence
4.07		No evidence
4.08		No evidence
4.09	1. Florida Exotic Pest Plant Council. http://www.fleppc.org/ID_book/senna%20pendula.pdf (Accessed: 2 August 2015) 2. Dave's Garden. http://davesgarden.com/guides/pf/go/142451/ (Accessed: 2 August 2015)	1. "Often becomes established in sunny openings and then clambers over adjacent canopy" 2. "Sun exposure: Full sun to partial shade"
4.10	1. Waterright. http://www.waterright.com.au/soil_maker.html (Accessed: 2 August 2015)	1. "Our work has focused on using Eater Casia (<i>Senna pendula</i> var. <i>glabrata</i>) to regenerate soil. It is a pioneer species and can grow on severely degraded soil. It is an extremely robust plant which thrives in poor soils, providing large quantities of succulent foliage which can be used for food by the soil biology, It is a legume and can capture nitrogen and with its deep and effective roots system is very efficient at mining phosphorous from deep in the soil." --- Insufficient evidence
4.11	1. Queensland Government Department of Agriculture and Fisheries. https://www.daf.qld.gov.au/plants/weeds-pest-animals-ants/weeds/a-z-listing-of-weeds/photo-guide-to-weeds/easter-cassia (Accessed: 2 August 2015)	1. "Smothers native vegetation."

4.12	1. Weeds of Byron Shire. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=0CCMQFjABOApqFQoTCKnMns6CjccCFUmSDQodWO4FzA&url=http%3A%2F%2Fwww.byron.nsw.gov.au%2Ffiles%2Fpublications%2FWeed_Profile_-_Winter_Senna.pdf&ei=yMy_Vam_KcmkNtjcl-AM&usg=AFQjCNEtW-DlepveNhxPjw7cIUh-ZJLCVg&sig2=kSM3B7SS3CRq-Jr0fQjang&bvm=bv.99261572,d.eXY (Accessed: 2 August 2015)	1. Lists control methods for a "dense thicket" of <i>Senna pendula</i> var. <i>glabrata</i>
5.01	USDA Germplasm Resources Information Network. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?404359 (Accessed: 2 August 2015)	1. "Family: Fabaceae"
5.02	USDA Germplasm Resources Information Network. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?404359 (Accessed: 2 August 2015)	1. "Family: Fabaceae"
5.03	1. Waterright. http://www.waterright.com.au/soil_maker.html (Accessed: 2 August 2015) 2. Redland City Council News. https://news.redland.qld.gov.au/2013/03/weed-of-the-week-easter-cassia/ (Accessed: 2 August 2015)	1. "It is a legume and can capture nitrogen" 2. "A woody, multi-branched shrub"
5.04		No evidence of specialized structures
6.01		No evidence of substantial reproductive failure
6.02	1. Biosecurity Queensland. https://www.moretonbay.qld.gov.au/uploadedFiles/moretonbay/environment/vegetation/easter-cassia-deedi.pdf (Accessed: 2 August 2015) 2. Queensland Government. http://keyserver.lucidcentral.org/weeds/data/080c0106-040c-4508-8300-0b0a06060e01/media/Html/Senna_pendula_var._glabrata.htm (Accessed: 2 August 2015)	1. "Flowering is followed by hundreds of brown, slender seed pods up to 12 cm long and each containing 5–10 seeds." 2. "This plant reproduces by seeds."
6.03		No evidence
6.04		No evidence
6.05	1. University of Florida IFAS Extension. https://edis.ifas.ufl.edu/uw311 (Accessed: 2 August 2015)	1. Formerly recommended for Monarch butterfly prior to being found invasive
6.06	1. Biosecurity Queensland. https://www.moretonbay.qld.gov.au/uploadedFiles/moretonbay/environment/vegetation/easter-cassia-deedi.pdf (Accessed: 2 August 2015) 2. Queensland Government. http://keyserver.lucidcentral.org/weeds/data/080c0106-040c-4508-8300-0b0a06060e01/media/Html/Senna_pendula_var._glabrata.htm (Accessed: 2 August 2015)	1. "Flowering is followed by hundreds of brown, slender seed pods up to 12 cm long and each containing 5–10 seeds." 2. "This plant reproduces by seeds." --- no evidence of vegetative propagation
6.07		No evidence

7.01	<p>1. Biosecurity Queensland. https://www.moretonbay.qld.gov.au/uploadedFiles/moretonbay/environment/vegetation/easter-cassia-deedi.pdf (Accessed: 2 August 2015) 2. Queensland Government. http://keyserver.lucidcentral.org/weeds/data/080c0106-040c-4508-8300-03 3. Whitsunday Catchment Landcare. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=16&ved=0CD8QFjAFOApqFQoTCjXqoeWGjccCFQLUgAodUPMIsQ&url=http%3A%2F%2Fwww.whitsundaylandcare.org.au%2F_literature_100852%2FWCL_Newsletter_June_2012&ei=LHG_VZWkK4KogwTQ5qOICw&usg=AFQjCNFvjZ-jk160tVEm7BHsARLV0mph_A&sig2=3Uy7f9CEVNXn9FuIRSmArA&bvm=bv.99261572,d.eXY (Accessed: 2 August 2015)</p>	<p>1. "It is frequently seen along roadsides and on the banks of waterways." 2. "Seeds are often dispersed in dumped garden waste. They may also be spread by water or in contaminated soil." 3. "Spread by... machinery"</p>
7.02	<p>1. Queensland Government. http://keyserver.lucidcentral.org/weeds/data/080c0106-040c-4508-8300-0b0a06060e01/media/Html/Senna_pendula_var._glabrata.htm (Accessed: 2 August 2015)</p>	<p>1. "Widely cultivated as a garden ornamental, particularly in the wetter coastal districts of Australia."</p>
7.03	<p>1. Whitsunday Catchment Landcare. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=16&ved=0CD8QFjAFOApqFQoTCjXqoeWGjccCFQLUgAodUPMIsQ&url=http%3A%2F%2Fwww.whitsundaylandcare.org.au%2F_literature_100852%2FWCL_Newsletter_June_2012&ei=LHG_VZWkK4KogwTQ5qOICw&usg=AFQjCNFvjZ-jk160tVEm7BHsARLV0mph_A&sig2=3Uy7f9CEVNXn9FuIRSmArA&bvm=bv.99261572,d.eXY (Accessed: 2 August 2015)</p>	<p>1. "Spread by... contaminated harvest material and fodder"</p>
7.04	<p>1. Queensland Government. http://keyserver.lucidcentral.org/weeds/data/080c0106-040c-4508-8300-0b0a06060e01/media/Html/Senna_pendula_var._glabrata.htm (Accessed: 2 August 2015)</p>	<p>1. No features adapting the seeds or pods to wind dispersal</p>
7.05	<p>1. Biosecurity Queensland. https://www.moretonbay.qld.gov.au/uploadedFiles/moretonbay/environment/vegetation/easter-cassia-deedi.pdf (Accessed: 2 August 2015) 2. Queensland Government. http://keyserver.lucidcentral.org/weeds/data/080c0106-040c-4508-8300-0b0a06060e01/media/Html/Senna_pendula_var._glabrata.htm (Accessed: 2 August 2015)</p>	<p>1. "It is frequently seen along roadsides and on the banks of waterways." 1. "They may also be spread by water"</p>
7.06	<p>1. Save Our Waterways Now. http://www.saveourwaterwaysnow.com.au/01_cms/details_pop.asp?ID=374 (Accessed: 2 August 2015) 2. Shoalhaven City Council. http://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D11/137881 (Accessed: 2 August 2015) 3. Weeds of Byron Shire. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=0CCMQFjABOApqFQoTCKnMns6CjccCFUmsDQodWO4FzA&url=http%3A%2F%2Fwww.byron.nsw.gov.au%2Ffiles%2Fpublications%2FWeed_Profile_-_Winter_Senna.pdf&ei=yMy_Vam_KcmkNtjcl-AM&usg=AFQjCNEtW-DlepveNhxPjw7clUh-ZJLCVg&sig2=kSM3B7SS3CRq-Jr0fQjang&bvm=bv.99261572,d.eXY (Accessed: 2 August 2015)</p>	<p>1. "from where its seed can be carried by birds or by dumping" 2. "These seeds are spread long distances by birds and other animals and remain viable in the soil for more than 5 years." 3. "Seed dispersed by water, ants, birds, rodents."</p>

7.07	<p>1. Whitsunday Catchment Landcare. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=16&ved=0CD8QFjAFOApqFQoTCjXqoeWGjccCFQLUgAodUPMIsQ&url=http%3A%2F%2Fwww.whitsundaylandcare.org.au%2F_literature_100852%2FWCL_Newsletter_June_2012&ei=LHG_VZWkK4KogwTQ5qOICw&usg=AFQjCNFvjZ-jk160tVEm7BHsARLV0mph_A&sig2=3Uy7f9CEVNXn9FuIRSmArA&bvm=bv.99261572,d.eXY (Accessed: 2 August 2015)</p>	1. "Spread by... animal hooves"
7.08	<p>1. Shoalhaven City Council. http://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D11/137881 (Accessed: 2 August 2015) 2. Weeds of Byron Shire. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=0CCMQFjABOApqFQoTCKnMns6CjccCFUmSDQodWO4FzA&url=http%3A%2F%2Fwww.byron.nsw.gov.au%2Ffiles%2Fpublications%2FWeed_Profile_-_Winter_Senna.pdf&ei=yMy_Vam_KcmkNtjcl-AM&usg=AFQjCNEtW-DlepveNhxPjw7clUh-ZJLCVg&sig2=kSM3B7SS3CRq-JrOfQjang&bvm=bv.99261572,d.eXY (Accessed: 2 August 2015)</p>	1. "These seeds are spread long distances by birds and other animals and remain viable in the soil for more than 5 years." 2. "Seed dispersed by water, ants, birds, rodents."
8.01	<p>1. Biosecurity Queensland. https://www.moretonbay.qld.gov.au/uploadedFiles/moretonbay/environment/vegetation/easter-cassia-deedi.pdf (Accessed: 2 August 2015)</p>	1. "Flowering is followed by hundreds of brown, slender seed pods up to 12 cm long and each containing 5–10 seeds."
8.02	<p>1. Shoalhaven City Council. http://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D11/137881 (Accessed: 2 August 2015) 2. Weeds of Byron Shire. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=0CCMQFjABOApqFQoTCKnMns6CjccCFUmSDQodWO4FzA&url=http%3A%2F%2Fwww.byron.nsw.gov.au%2Ffiles%2Fpublications%2FWeed_Profile_-_Winter_Senna.pdf&ei=yMy_Vam_KcmkNtjcl-AM&usg=AFQjCNEtW-DlepveNhxPjw7clUh-ZJLCVg&sig2=kSM3B7SS3CRq-JrOfQjang&bvm=bv.99261572,d.eXY (Accessed: 2 August 2015)</p>	1. "remain viable in the soil for more than 5 years" 3. "Seed is long-lived (3-5 years or more) in the soil"
8.03	<p>1. Biosecurity Queensland. https://www.moretonbay.qld.gov.au/uploadedFiles/moretonbay/environment/vegetation/easter-cassia-deedi.pdf (Accessed: 2 August 2015) 2. Queensland Government Department of Agriculture and Fisheries. https://www.daf.qld.gov.au/plants/weeds-pest-animals-ants/weeds/a-z-listing-of-weeds/photo-guide-to-weeds/easter-cassia (Accessed: 2 August 2015) 3. Fraser Coast Regional Council. http://www.frasercoast.qld.gov.au/en_US/weed-busting/-/asset_publisher/4jRk/content/easter-cassia-senna-pendula-var-glabrata (Accessed: 2 August 2015)</p>	1. "This plant can be controlled with herbicides." 2. "Herbicides are effective." 3. "Chemical control by cut stump with Glyphosate or basal bark spray with fluoxypyr and diesel."

8.04	<p>1. Weeds of Byron Shire. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=0CCMQFjABOApqFQoTCKnMns6CjccCFUmSDQodWO4FzA&url=http%3A%2F%2Fwww.byron.nsw.gov.au%2Ffiles%2Fpublications%2FWeed_Profile_-_Winter_Senna.pdf&ei=yymy_Vam_KcmkNtjcl-AM&usg=AFQjCNEtW-DlepveNhXPjw7cIUh-ZJLCVg&sig2=kSM3B7SS3CRq-Jr0fQjang&bvm=bv.99261572,d.eXY (Accessed: 2 August 2015) 2. Queensland Government Department of Agriculture and Fisheries. https://www.daf.qld.gov.au/plants/weeds-pest-animals-ants/weeds/a-z-listing-of-weeds/photo-guide-to-weeds/easter-cassia (Accessed: 3 August 2015)</p>	<p>1. "germination is likely to be stimulated by fire. Plants also re-sprout from the roots after fire." 2. "Remove the whole crown for the achievement of long term control. This approach may be deemed too labour intensive for more established individual plants or for larger infestations."</p>
8.05		No evidence