

Australia/New Zealand Weed Risk Assessment adapted for Florida.

Data used for analysis published in: Gordon, D.R., D.A. Onderdonk, A.M. Fox, R.K. Stocker, and C. Gantz. 2008. Predicting Invasive Plants in Florida using the Australian Weed Risk Assessment. Invasive Plant Science and Management 1: 178-195.

<i>Spergula arvensis (corn spurry)</i>			
Question number	Question	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)	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	n	0
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	y	0
3.02	Garden/amenity/disturbance weed	y	0
3.03	Weed of agriculture	y	0
3.04	Environmental weed	n	0
3.05	Congeneric weed	n	0
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	y	1
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	y?	1
4.06	Host for recognised pests and pathogens	y	1
4.07	Causes allergies or is otherwise toxic to humans	n	0
4.08	Creates a fire hazard in natural ecosystems	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	n?	0
4.1	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils)	y	1
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	n	0
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		
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally	n	-1
6.04	Self-compatible or apomictic	y	1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative fragmentation	n	-1
6.07	Minimum generative time (years)	1	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	y	1
7.05	Propagules water dispersed	y	1
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	?	
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	n?	-1
8.05	Effective natural enemies present in Florida, or east of the continental divide		
Total Score			20

Outcome	Reject*
----------------	----------------

*Used secondary screen from: Daehler, C. C., J.L. Denslow, S. Ansari, and H. Kuo. 2004. A risk assessment system for screening out harmful invasive pest plants from Hawaii's and other Pacific islands. *Conserv. Biol.* 18: 360-368.

section	# questions answered	satisfy minimum?
A	8	yes
B	12	yes
C	21	yes
total	41	yes

Data collected 2006-2007

Question number	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
1.02		
1.03		
2.01	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"The plants can withstand light frosts"
2.02		
2.03	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"... <i>S. arvensis</i> is a cosmopolitan weed that is most widely distributed in the temperate zones but that does enter the tropics and competes with crops at higher elevations. It is on all the continents..."
2.04	Grime, Hodgson, and Hunt (1988) <i>Comparative Plant Ecology: a Functional Approach to Common British Species</i> . Unwin Hyman Ltd., London.	"absent from waterlogged habitats"
2.05	1. Wagner, Herbst, and Sohmer (1999) <i>Manual of the flowering plants of Hawai'i</i> . University of Hawai'i Press/Bishop Museum Press, Honolulu. 2. Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	Native to Europe (1); now a "cosmopolitan weed" (2).
3.01	Wagner, Herbst, and Sohmer (1999) <i>Manual of the flowering plants of Hawai'i</i> . University of Hawai'i Press/Bishop Museum Press, Honolulu.	"Native to Europe, widely naturalized"
3.02	Lorenzi (2000) <i>Plantas Daninhas do Brasil</i> . Instituto Plantarum.	a very common weed in home gardens
3.03	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"It has been reported to be a weed in 25 crops in 33 countries."
3.04		no evidence
3.05		no evidence
4.01	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	no description of these traits

4.02	Peterson, Snook, Harrison, and Mason (1998) Isolation and structural identification of sucrose esters from corn spurrey (<i>Spergula arvensis</i>): inhibition of seed germination. <i>Journal of Chemical Ecology</i> 24: 1803-1816.	"Polar as well as nonpolar extracts of <i>Spergula arvensis</i> (corn spurrey) were shown to cause inhibition of seed germination."
4.03	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	no description of this
4.04	1. Hicks and Taylor (2000) Clinical hypocalcaemia associated with Yarr (<i>Spergula arvensis</i>) ingestion. <i>New Zealand Veterinary Journal</i> 48: 90. 2. Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	1. "Yarr [<i>S. arvensis</i>] does not appear to be unpalatable to stock." 2. "It is liked by stock in general but particularly by sheep and cattle. It is a favorite of poultry."
4.05	1. Hicks and Taylor (2000) Clinical hypocalcaemia associated with Yarr (<i>Spergula arvensis</i>) ingestion. <i>New Zealand Veterinary Journal</i> 48: 90. 2. Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	1. "This is to report an outbreak of clinical hypocalcaemia in dairy cows grazing a paddock heavily infested with Yarr [<i>S. arvensis</i>]...We strongly suspect that Yarr is potentially toxic to ruminants in certain circumstances" BUT 2. "It is liked by stock in general but particularly by sheep and cattle. It is a favorite of poultry."
4.06	1. Stevens, Smith, and Hallsworth (1994) The host range of beet yellowing viruses among common arable weed species. <i>Plant Pathology</i> 43: 579-588. 2. Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	1. <i>Spergula arvensis</i> found to be susceptible to beet yellows virus, beet mild yellowing virus, and an isolate of beet western yellows viruses. 2. "...the species is a host for the beet mild yellows virus but apparently not for beet yellows. Since the weed can overwinter successfully in England, it may pass the virus from one crop to the next. Lucerne mosaic will also overwinter in <i>S. arvensis</i> ."
4.07	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"This species was a source of food for man during the 3rd to 5th centuries A.D. in northern Europe."
4.08		no evidence
4.09	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	" <i>S. arvensis</i> is never a member of a closed community but likes to grow in open places"
4.1	1. Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu. 2. Lorenzi (2000) <i>Plantas Daninhas do Brasil</i> . Instituto Plantarum.	1. "The plant prefers light soils but can grow well on heavy soils." 2. "Generally prefers acidic, sandy soils"
4.11	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National	growth habit: forb/herb

	Plant Data Center, Baton Rouge, LA 70874-4490 USA.	
4.12	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"In the Philippines it...forms very dense mats in vegetable fields if control measures are not adequate." [but a low herb]
5.01		terrestrial
5.02	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	Caryophyllaceae
5.03	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	herbaceous Caryophyllaceae
5.04	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"taproot and secondary roots finely branched"
6.01		
6.02	Lorenzi (2000) <i>Plantas Daninhas do Brasil</i> . Instituto Plantarum.	"Propagates solely by seeds."
6.03	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"There is no evidence thus far of hybridization with other species"
6.04	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"At least 97 percent selfing occurs in nature. The stamen length is such that pollination takes place when the flowers are closed."
6.05	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"The stamen length is such that pollination takes place when the flowers are closed. There is a small amount of pollination by insects such as syrphids, wasps, and honeybees."
6.06	1. Lorenzi (2000) <i>Plantas Daninhas do Brasil</i> . Instituto Plantarum. 2. Grime, Hodgson, and Hunt (1988) <i>Comparative Plant Ecology: a Functional Approach to Common British Species</i> . Unwin Hyman Ltd., London.	1. "Propagates solely by seeds." 2. regeneration is "exclusively by seed"
6.07	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"In the temperate zone it may be expected to flower in about 8 weeks and produce mature seeds in about 10 weeks after germination."
7.01	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"Short-distance dispersal is by...agricultural machines."
7.02	Lorenzi (2000) <i>Plantas Daninhas do Brasil</i> . Instituto Plantarum.	"It has excellent qualities as a forage, and has been cultivated exclusively for this purpose."
7.03	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"The seeds are moved about in commerce with crop seeds."

7.04	1. Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu. 2. Grime, Hodgson, and Hunt (1988) <i>Comparative Plant Ecology: a Functional Approach to Common British Species</i> . Unwin Hyman Ltd., London.	1. seeds have a narrow wing around the margin 2. wind-dispersed
7.05	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"Short-distance dispersal is by water..."
7.06	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"Viable seeds have been found in the droppings of...sparrows, pigeons, and other birds."
7.07	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"Short-distance dispersal is by...mud on animals..." [a minor means of dispersal?]
7.08	Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu.	"Viable seeds have been found in the droppings of horses, sheep, pigs, cattle"
8.01	Grime, Hodgson, and Hunt (1988) <i>Comparative Plant Ecology: a Functional Approach to Common British Species</i> . Unwin Hyman Ltd., London.	"Seed production is...prolific. Robust plants may produce as many as 7500 seeds" [small plant]
8.02	1. Holm, Plucknett, Pancho, and Herberger (1977) <i>The World's Worst Weeds: Distribution and Biology</i> . The University Press of Hawaii, Honolulu. 2. Grime, Hodgson, and Hunt (1988) <i>Comparative Plant Ecology: a Functional Approach to Common British Species</i> . Unwin Hyman Ltd., London.	1. "Excavations of occupation sites dating back to the Iron Age 2,000 years ago yielded seeds which were still able to germinate"; "Normally there is some viability after 5 years in the soil; but after 10 years only a few seeds can grow." 2. "S.a. forms a large persistent seed bank...Seeds appear to be capable of extended survival in the soil"
8.03	Dixon and Clay (2004) Effect of herbicides applied pre- and post-emergence on forestry weeds grown from seed. <i>Crop Protection</i> 23: 713-721.	"...and <i>Spergula arvensis</i> were all effectively controlled by diphenamid, lenacil, metamiltron, metazachlor and napropamide when applied immediately after sowing."
8.04	Grime, Hodgson, and Hunt (1988) <i>Comparative Plant Ecology: a Functional Approach to Common British Species</i> . Unwin Hyman Ltd., London.	not tolerant of trampling
8.05		