

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>Agrostemma githago (common corncockle)</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)		
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	?	
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	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		
4.07	Causes allergies or is otherwise toxic to humans	y	1
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)		
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	n	-1
7.06	Propagules bird dispersed	?	
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	?	
8.01	Prolific seed production	y?	1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	n	-1
8.03	Well controlled by herbicides	y?	-1
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in Florida, or east of the continental divide		
Total Score			9

Outcome	Reject*
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*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	6	yes
B	11	yes
C	18	yes
total	35	yes

Data collected 2006-2007

Question number	Reference	Source data
1.01		used horticulturally but no evidence of selection for reduced weediness
1.02		
1.03		
2.01		
2.02		
2.03		
2.04	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	" <i>A. githago</i> used to be found on all types of soils which supported cereal crops. Such soils are not waterlogged".
2.05	1. Mohlenbrock (2001) Flowering Plants: Pokeweeds, Four-o'clocks, Carpetweeds, Cacti, Purslanes, Goosefoots, Pigweeds, and Pinks. Southern Illinois University Press. 2. Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246. 3. New Zealand Plant Conservation Network (2005) New Zealand Adventive Vascular Plant List.	Native to Eurasia (1), but introduced into Britain (2), New Zealand (3), and the U.S (1).
3.01	1. Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246. 2. Mohlenbrock (2001) Flowering Plants: Pokeweeds, Four-o'clocks, Carpetweeds, Cacti, Purslanes, Goosefoots, Pigweeds, and Pinks. Southern Illinois University Press.	Naturalized (though declining) in Britain (1), and throughout the United States (2).
3.02		occurs in disturbed areas - unclear how weedy it is
3.03	1. Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246. 2. Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons.	1. "It was an abundant weed of cereal and other arable crops, but declined during the period 1910-60, largely as a result of improved seed cleaning." 2. Reported as a weed of agriculture in several countries throughout the world, including in South America, Africa, and Australia (serious weed in Argentina and Hungary, principal weed in Greece, Italy, and Poland, and common weed in many other countries).
3.04		no evidence
3.05		no evidence
4.01	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	no description of these traits
4.02	Sogaard and Doll (1992) A positive allelopathic effect of corn cockle, <i>Agrostemma githago</i> , on wheat, <i>Triticum aestivum</i> . Canadian Journal of Botany 70: 1916-1918.	<i>A. githago</i> was found to have a positive allelopathic effect on wheat. [no evidence of negative allelopathy]

4.03	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	no description of this
4.04	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"Large domestic animals tend to avoid the plant (Henslow 1901)."
4.05	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"The whole plant contains a saponin, githagenin, which acts as a poison to many farm animals and man...The seeds kill if ingested in sufficient quantity"
4.06	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"Cultured cells of <i>A. githago</i> show potent inhibitory activity against plant virus infections"
4.07	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"The whole plant contains a saponin, githagenin, which acts as a poison to many farm animals and man...The condition is known as githagism in man, and can prove fatal if the intake of seeds is continued."
4.08		no evidence
4.09	1. Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246. 2. Horticultura 4.0	1. " <i>A. githago</i> normally requires relatively open disturbed habitats (Svensson & Wigren 1983)." 2. exposure: full sun
4.1	1. Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246. 2. Horticultura 4.0	1. " <i>A. githago</i> used to be found on all types of soils which supported cereal crops. Such soils are not waterlogged and may be clayey, sandy, loamy or chalky" 2. "Suitable soil is well-drained/loamy or sandy."
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 Plant Data Center, Baton Rouge, LA 70874-4490 USA.	growth habit: forb/herb
4.12		no evidence, and is an 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	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"an annual herb with a strong tap root"
6.01		

6.02	1. Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246. 2. Horticultura 4.0	1. "If not harvested, the seeds fall and germinate within 1 m of the parent plants" 2. "Propagation is from seeds."
6.03	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"No interspecific hybrids are recorded."
6.04	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"Other anthers then elongate, allowing self-fertilization...The flowers are completely self-compatible"
6.05	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	<i>A. githago</i> is either self-fertilized or pollinated by insects.
6.06	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"Clonal growth does not occur."
6.07	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	Seeds are shed about a year after germination.
7.01		
7.02	1. Burrows and Tyrl (2001) Toxic Plants of North America. Iowa State University Press, Ames. 2. Horticultura 4.0	1. "Also cultivated as a garden ornamental" 2. used horticulturally
7.03	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	Plants are often accidentally introduced with imported grain.
7.04	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"If not harvested, the seeds fall and germinate within 1 m of the parent plants"
7.05	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"If not harvested, the seeds fall and germinate within 1 m of the parent plants"
7.06	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"When the capsules are mature, they dry out and open, and most seeds fall within 1 m of the parent plant." BUT "Seeds...have been taken by the American crow <i>Corvus brachyrhynchos</i> "
7.07		no evidence of any means of attachment
7.08	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"When the capsules are mature, they dry out and open, and most seeds fall within 1 m of the parent plant." BUT "Seeds were occasionally found in cow dung (Salisbury 1961)"
8.01	1. Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246. 2. Watkinson (1981) Interference in pure and mixed populations of <i>Agrostemma githago</i> . Journal of Applied Ecology 18: 967-976.	1. <i>A. githago</i> may produce over 3,000 seeds per plant and up to 60 seeds per capsule. [and is a small plant] 2. <i>A. githago</i> produced up to 4,000 seeds/m ² , and approximately 3,685 seeds per plant.

8.02	1. Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246. 2. Muenscher (1980) Weeds. 2nd ed. Cornell University Press, Ithaca.	1. "In general, there is no persistent seed bank" (but mixed results with stored seeds) 2. "Corn cockle seeds rarely retain their viability for more than one year when plowed under in the soil."
8.03	Firbank (1988) Biological flora of the British Isles, No. 165, <i>Agrostemma githago</i> L. Journal of Ecology 76: 1232-1246.	"A. <i>githago</i> is resistant to the herbicides MCPA and 2, 4-D (Woodford 1960). Bromoxynil is more effective, if applied in the autumn rather than in the spring (Rydrych 1981). In the absence of a crop, the herbicide Oxitril 4 (which contains bromoxynil, ioxynil, MCPA and dichlorprop) results in shoot dry weights approximately one-quarter of those obtained in controls."
8.04		
8.05		