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.

Caperonia palustris (texasweed)			
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	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	?	
3.01	Naturalized beyond native range	?	
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	y	4
3.04	Environmental weed	n	0
3.05	Congeneric weed	y	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		
4.05	Toxic to animals	n	0
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		
4.1	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils)	n	0
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		
6.04	Self-compatible or apomictic	y	1
6.05	Requires specialist pollinators		
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	n	-1
7.03	Propagules likely to disperse as a produce contaminant	n	-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)	y?	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)	?	
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			5

Outcome	**Evaluate***

*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	9	yes
C	15	yes
total	30	yes

Data collected 2006-2007

Question number	Reference	Source data
1.01		no evidence of cultivation
1.02		
1.03		
2.01		
2.02		
2.03		
2.04	1. Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico. 2. Koger, Reddy, and Poston (2004) Factors affecting seed germination, seedling emergence, and survival of texasweed (*Caperonia palustris*). Weed Science 52: 989-995. 3. Ramirez and Brito (1990) Reproductive biology of a tropical palm swamp community in the Venezuelan Llanos. American Journal of Botany 77: 1260-1271.	1. "Wet grounds at lower elevations" 2. "Texasweed seedlings 2.5 to 15 cm tall were not affected by emersion in 10-cm-deep flood for up to 14 d." 3. Found in a palm swamp community in the Venezuelan Llanos.
2.05	Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico.	"Puerto Rico; Florida to Louisiana, West Indies, Mexico and Central America, tropical South America, south to Argentina and Uruguay." [unclear what is native]
3.01		
3.02		no evidence
3.03	1. Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons. 2. Koger, Reddy, and Poston (2004) Factors affecting seed germination, seedling emergence, and survival of texasweed (*Caperonia palustris*). Weed Science 52: 989-995.	1. Considered a common weed of agriculture in Trinidad, and present as a weed in the Lesser Antilles, Colombia, El Salvador, and Surinam. 2. Texasweed is a problem weed in rice and soybean grown in the lower Mississippi River Delta Region.
3.04		no evidence
3.05	Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons.	*C. castanaefolia* is present as a weed in the U.S., and *C. serrata* is present as a weed in Nigeria.
4.01	Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico.	no description of these traits
4.02		no evidence

4.03	Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico.	no description of this
4.04		
4.05		no evidence
4.06		
4.07	Coile (1995) A list of some plants known to cause dermatitis: a guide for DPI plant protection and environmental specialists. Florida Department of Agriculture and Consumer Services. Division of Plant Industry (http://www.doacs.state.fl.us/pi/enpp/botany/images/poisonplants.pdf).	stinging hairs of *C. palustris* cause dermatitis
4.08		no evidence
4.09		
4.1	Koger, Reddy, and Poston (2004) Factors affecting seed germination, seedling emergence, and survival of texasweed (*Caperonia palustris*). Weed Science 52: 989-995.	"Texasweed prevails in fields with clay 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 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.	Euphorbiaceae
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 Euphorbiaceae
5.04	Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico.	taprooted
6.01		
6.02	Koger, Reddy, and Poston (2004) Factors affecting seed germination, seedling emergence, and survival of texasweed (*Caperonia palustris*). Weed Science 52: 989-995.	90% of seeds were viable
6.03		
6.04	Ramirez and Brito (1990) Reproductive biology of a tropical palm swamp community in the Venezuelan Llanos. American Journal of Botany 77: 1260-1271.	*Caperonia palustris* was found to be self-compatible.
6.05		
6.06	1. USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W.	annual (1, 2) [and no evidence of vegetative reproduction]

	Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. 2. Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico.	
6.07	1. 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. 2. Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico.	annual (1, 2)
7.01		
7.02		no evidence
7.03		no evidence
7.04	Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico.	"capsules 5-7 mm in diameter, muricate" [no evidence of any adaptations for wind dispersal]
7.05		no evidence
7.06	LSU AgCenter (http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Weed+Control/Texasweed+Caperonia+palustris.htm).	"It is the popularity of this seed as a food source for birds that gives the plant the common name Birdeye."
7.07	Liogier (1988) Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 2. Editorial de la Universidad de Puerto Rico.	"capsules 5-7 mm in diameter, muricate"
7.08		externally dispersed
8.01	Koger, Reddy, and Poston (2004) Factors affecting seed germination, seedling emergence, and survival of texasweed (*Caperonia palustris*). Weed Science 52: 989-995.	At a density of 8 plants/m^2, seed yield averaged 815 seeds/plant (giving 6,520 seeds/m^2). 90% of seeds were viable. [but plant density created artificially by thinning]
8.02	Koger, Reddy, and Poston (2004) Factors affecting seed germination, seedling emergence, and survival of texasweed (*Caperonia palustris*). Weed Science 52: 989-995.	"Apparently, when texasweed seed mature in late summer they are innately dormant" [unclear whether this would be true in soil and for how long]
8.03	1. Barrentine, Grant, Guy, Helms, Street, Jordan, Klosterboer, Sanders, and Braverman (1995) Grandstand R: a versatile postemergence broadleaf herbicide for rice. Down to Earth (Midland) 50: 26-31. 2. Koger, Reddy, and Poston (2004) Factors affecting seed germination, seedling emergence, and survival of texasweed (*Caperonia palustris*). Weed Science 52: 989-995.	1. "Results indicated that Grandstand R alone or in combination with Stam applied pre- or post-flood provided effective control of many problem weeds in rice. At 0.25 lb pre-flood, Grandstand R gave >90% control of all weeds [including *C. palustris*] except...". BUT 2. "It is difficult to control with glyphosate and other herbicides. Griffin et al. (2002) reported limited control with various rates and combinations of glyphosate, acifluorfen, bentazon,

		and fomesafen when plants exceeded the three-leaf growth stage."
8.04		
8.05		