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.

Paspalum urvillei (vasey grass)			
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?	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	y	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	?	
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	n	0
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	y	1
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	n	0
6.06	Reproduction by vegetative fragmentation	y	1
6.07	Minimum generative time (years)		
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	?	
7.05	Propagules water dispersed	n	-1
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	?	
7.08	Propagules dispersed by other animals (internally)	n	-1
8.01	Prolific seed production	y	1
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	y	1
8.05	Effective natural enemies present in Florida, or east of the continental divide		
Total Score			13

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	7	yes
B	11	yes
C	16	yes
total	34	yes

Data collected 2006-2007

Question number	Reference	Source data
1.01		no evidence of selection for reduced weediness
1.02		
1.03		
2.01		
2.02		
2.03		
2.04	1. FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm) 2. Newman and Sollenberger (2005) Grazing management and nitrogen fertilization effects on vaseygrass persistence in limpograss pastures. Crop Science 45: 2038-2043.	1. "It can grow on very wet land." 2. vaseygrass is adapted to poorly drained soils
2.05	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"A native of Argentina and Uruguay, it has spread to several tropical areas."
3.01	Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.	"Native to the New World, now naturalized in many subtropical regions; in Hawai'i naturalized along ditches and roadsides and in fields, pastures, and other disturbed, usually mesic areas"
3.02	PIER, Institute of Pacific Islands Forestry (http://www.hear.org/pier/species/paspalum_urvillei.htm).	"A weed of disturbed areas." Grows in dense stands along roadsides and disturbed areas in Hawaii, displacing native vegetation.
3.03	1. Ishimine (1987) Studies on weed vegetation in sugarcane fields in the Ryukyu Islands and ecology and physiology of injurious weed species. Science Bulletin of the College of Agriculture, University of the Ryukyus, Okinawa 34: 95-185. 2. Newman and Sollenberger (2005) Grazing management and nitrogen fertilization effects on vaseygrass persistence in limpograss pastures. Crop Science 45: 2038-2043.	1. "*Bidens pilosa* var. *radiata* and *Paspalum urvillei* were by far the most damaging weed species out of a total of 233 weed species identified." 2. "Vaseygrass has long been considered a weed in pastures and in harvested forage crops"
3.04		no evidence
3.05	Weber (2003) Invasive Plant Species of the World. CABI Publishing.	*P. conjugatum* considered an

		environmental weed in Hawaii; *P. dilatatum* in southern Europe, Australia, and Hawaii; and *P. distichum* in southern Europe and Australia.
4.01	Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.	no description of these traits
4.02	Ishimine, Nakama, and Matsumoto (1987) Allelopathic potential of *Paspalum urvillei* STEUD., *Bidens pilosa* L. var. *radiata* SCHERFF., and *Stellaria aquatica* SCOP., dominant weeds in sugarcane fields in the Ryukyu Islands. Weed Research, Japan 32: 274-281.	"In greenhouse trials, the plant height, DW and leaf number of *Phaseolus vulgaris* were significantly reduced by exudates of *Paspalum urvillei*…Exudates of *P. urvillei*…significantly reduced the top DW of squash"
4.03	Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.	no description of this
4.04	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"It is killed by heavy grazing. It is not as palatable as other species, quickly becoming coarse, and is thus avoided by stock." [seems contradictory…]
4.05	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"no cases of poisoning have been reported"
4.06	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"No major diseases occur…No serious pests attack the plant."
4.07	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"no cases of poisoning have been reported"
4.08		no evidence
4.09	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"It prefers full sunlight and does not grow well in shade."
4.1	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"It thrives best on heavy soils, but succeeds well on moist, sandy land. It has a wide soil range"
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: graminoid
4.12		no evidence
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.	Poaceae
5.03	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBAS	"There is some nitrogenase activity in association with its roots" [but is

	E/data/pf000295.htm)	herbaceous]
5.04	Futch and Hall (2004) Identification of grass weeds in Florida citrus. University of Florida, IFAS Extension, HS955 (http://edis.ifas.ufl.edu/pdffiles/HS/HS17500.pdf).	roots fibrous
6.01		
6.02	Futch and Hall (2004) Identification of grass weeds in Florida citrus. University of Florida, IFAS Extension, HS955 (http://edis.ifas.ufl.edu/pdffiles/HS/HS17500.pdf).	propagated by seeds
6.03	Burson (1992) Cytology and reproductive behavior of hybrids between *Paspalum urvillei* and two hexaploid *P. dilatatum* biotypes. Genome 35: 1002-1006.	hybridizes artificially with *P. dilatatum* [no information on natural hybrids]
6.04	Caponio and Quarin (1990) Intra- and interspecific hybridization between dallisgrass and vaseygrass. Crop Science 30: 362-364.	*P. urvillei* was "able to produce seed either under open- or selfpollination, indicating the lack of a genetic system for selfincompatibility". Had 76% seed set under self-pollinated conditions.
6.05		likely wind-pollinated (grass)
6.06	Futch and Hall (2004) Identification of grass weeds in Florida citrus. University of Florida, IFAS Extension, HS955 (http://edis.ifas.ufl.edu/pdffiles/HS/HS17500.pdf).	has short rhizomes
6.07		
7.01		
7.02	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"It is seldom planted, but is used where it is found"
7.03		no evidence
7.04		
7.05		no evidence
7.06		grass
7.07		
7.08		grass
8.01	1. FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm) 2. Newman and Sollenberger (2005) Grazing management and nitrogen fertilization effects on vaseygrass persistence in limpograss pastures. Crop Science 45: 2038-2043.	1. "heavy seed production" 2. "prolific seed production"
8.02		
8.03	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"To control this grass use 2,2-DPA at 2.3 kg of a 740 g AI/kg product (e.g. Shirpon, Dowpon, Ellapon) plus paraquat at 85 ml per 200 l of water…Alternatively a single application of glyphosate at 6 l/ha of a 360 g AI/l product (e.g. Round-up) can suffice."

8.04	FAO, Grassland Index (http://www.fao.org/ag/AGP/AGPC/doc/GBASE/data/pf000295.htm)	"It will survive fire."
8.05		