

**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>Cyanotis cristata</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		
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	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	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	y	1
4.1	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils)		
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		
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators		
6.06	Reproduction by vegetative fragmentation	?	
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)	n	-1
7.08	Propagules dispersed by other animals (internally)		
8.01	Prolific seed production		
8.02	Evidence that a persistent propagule bank is formed (>1 yr)		
8.03	Well controlled by herbicides		
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in Florida, or east of the continental divide		
<b>Total Score</b>			<b>5</b>

<b>Outcome</b>	<b>Evaluate*</b>
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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	5	yes
B	9	yes
C	10	yes
total	24	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		
2.05	Siemonsma and Piluek, eds. (1994) Plant Resources of South-East Asia. No. 8. Vegetables. PROSEA, Bogor, Indonesia.	"Originating in tropical Asia and Africa, but is now a pantropical weed."
3.01	Siemonsma and Piluek, eds. (1994) Plant Resources of South-East Asia. No. 8. Vegetables. PROSEA, Bogor, Indonesia.	"Originating in tropical Asia and Africa, but is now a pantropical weed."
3.02	1. Dassanayake, MD and WD Clayton, eds (2000) A Revised Handbook to the Flora of Ceylon. Vol. XIV. A.A. Balkema, Rotterdam ( <a href="http://books.google.com/books?id=ZFu680T91_gC&amp;pg=RA3-PA123&amp;lpg=RA3-PA123&amp;dq=commelina+cristata&amp;source=web&amp;ots=JJeVYzac7-&amp;sig=5XWLI Dce3HJ6Bce3XAdrEdmURA8#PRA3-PA123,M1">http://books.google.com/books?id=ZFu680T91_gC&amp;pg=RA3-PA123&amp;lpg=RA3-PA123&amp;dq=commelina+cristata&amp;source=web&amp;ots=JJeVYzac7-&amp;sig=5XWLI Dce3HJ6Bce3XAdrEdmURA8#PRA3-PA123,M1</a> ). 2. Siemonsma and Piluek, eds. (1994) Plant Resources of South-East Asia. No. 8. Vegetables. PROSEA, Bogor, Indonesia.	1. "an occasional weed in the Neotropics" 2. "a pantropical weed" [but counted as an agricultural weed (see 3.03) - not counting here as well, since it's not clear what type of weed is meant]
3.03	1. Naples, ML (2005) Weeds of Rain Fed Lowland Rice Fields of Laos & Cambodia. Unpublished MSc thesis, University of Leiden ( <a href="http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm">http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm</a> ). 2. Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons.	1. Listed as a weed of rice fields in Laos and Cambodia, subject to manual control. 2. <i>C. cristata</i> considered present as a weed of agriculture in the Philippines and Vietnam.
3.04		no evidence
3.05	Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons.	<i>C. axillaris</i> considered a principal weed of agriculture in India, Sudan, and Thailand.
4.01	Naples, ML (2005) Weeds of Rain Fed Lowland Rice Fields of Laos & Cambodia. Unpublished MSc thesis, University of Leiden	"Thorns absent." [for genus <i>Cyanotis</i> ]

	( <a href="http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm">http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm</a> ).	
4.02		no evidence
4.03	Naples, ML (2005) Weeds of Rain Fed Lowland Rice Fields of Laos & Cambodia. Unpublished MSc thesis, University of Leiden ( <a href="http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm">http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm</a> ).	non-parasitic [for genus <i>Cyanotis</i> ]
4.04	Siemonsma and Piluek, eds. (1994) Plant Resources of South-East Asia. No. 8. Vegetables. PROSEA, Bogor, Indonesia.	"The species is also useful as a forage." [unclear whether it is a preferred species]
4.05	Siemonsma and Piluek, eds. (1994) Plant Resources of South-East Asia. No. 8. Vegetables. PROSEA, Bogor, Indonesia.	"The species is also useful as a forage." [and no evidence of toxicity]
4.06		
4.07	Siemonsma and Piluek, eds. (1994) Plant Resources of South-East Asia. No. 8. Vegetables. PROSEA, Bogor, Indonesia.	"Leaves and stems are used as a vegetable in West Java." [and no evidence of toxicity or allergenicity]
4.08		no evidence
4.09	Dassanayake, MD and WD Clayton, eds (2000) A Revised Handbook to the Flora of Ceylon. Vol. XIV. A.A. Balkema, Rotterdam ( <a href="http://books.google.com/books?id=ZFu680T91_gC&amp;pg=RA3-PA123&amp;lpg=RA3-PA123&amp;dq=commelina+cristata&amp;source=web&amp;ots=IJeVYzac7-&amp;sig=5XWLIIDce3HJ6Bce3XAdrEdmURA8#PRA3-PA123,M1">http://books.google.com/books?id=ZFu680T91_gC&amp;pg=RA3-PA123&amp;lpg=RA3-PA123&amp;dq=commelina+cristata&amp;source=web&amp;ots=IJeVYzac7-&amp;sig=5XWLIIDce3HJ6Bce3XAdrEdmURA8#PRA3-PA123,M1</a> ).	"sun or shade"
4.1		
4.11	Siemonsma and Piluek, eds. (1994) Plant Resources of South-East Asia. No. 8. Vegetables. PROSEA, Bogor, Indonesia.	"Erect or ascending, branched herb, up to 40 cm tall"
4.12		no evidence
5.01	Naples, ML (2005) Weeds of Rain Fed Lowland Rice Fields of Laos & Cambodia. Unpublished MSc thesis, University of Leiden ( <a href="http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm">http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm</a> ).	terrestrial
5.02		Commelinaceae
5.03		herbaceous Commelinaceae
5.04	1. Dassanayake, MD and WD Clayton, eds (2000) A Revised Handbook to the Flora of Ceylon. Vol. XIV. A.A. Balkema, Rotterdam ( <a href="http://books.google.com/books?id=ZFu680T91_gC&amp;pg=RA3-PA123&amp;lpg=RA3-PA123&amp;dq=commelina+cristata&amp;source=web&amp;ots=IJeVYzac7-&amp;sig=5XWLIIDce3HJ6Bce3XAdrEdmURA8#PRA3-PA123,M1">http://books.google.com/books?id=ZFu680T91_gC&amp;pg=RA3-PA123&amp;lpg=RA3-PA123&amp;dq=commelina+cristata&amp;source=web&amp;ots=IJeVYzac7-&amp;sig=5XWLIIDce3HJ6Bce3XAdrEdmURA8#PRA3-PA123,M1</a> ). 2. Naples, ML (2005) Weeds of Rain Fed Lowland Rice Fields of Laos & Cambodia. Unpublished MSc thesis, University of Leiden ( <a href="http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm">http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm</a> ).	1. "roots thin, fibrous" 2. "Underground parts without tuber-like structures." [for genus <i>Cyanotis</i> ]

6.01		
6.02		
6.03		
6.04		
6.05		
6.06	Naples, ML (2005) Weeds of Rain Fed Lowland Rice Fields of Laos & Cambodia. Unpublished MSc thesis, University of Leiden ( <a href="http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm">http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm</a> ).	rhizomes and stolons absent [for genus <i>Cyanotis</i> ] [but seems likely to be able to root at nodes]
6.07	1. Dassanayake, MD and WD Clayton, eds (2000) A Revised Handbook to the Flora of Ceylon. Vol. XIV. A.A. Balkema, Rotterdam ( <a href="http://books.google.com/books?id=ZFu680T91_gC&amp;pg=RA3-PA123&amp;lpg=RA3-PA123&amp;dq=commelina+crinata&amp;source=web&amp;ots=IJeVYzac7-&amp;sig=5XWLIIDce3HJ6Bce3XAdrEdmURA8#PRA3-PA123,M1">http://books.google.com/books?id=ZFu680T91_gC&amp;pg=RA3-PA123&amp;lpg=RA3-PA123&amp;dq=commelina+crinata&amp;source=web&amp;ots=IJeVYzac7-&amp;sig=5XWLIIDce3HJ6Bce3XAdrEdmURA8#PRA3-PA123,M1</a> ). 2. Flora of China, vol. 24 ( <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=240001180">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=240001180</a> ). 3. Naples, ML (2005) Weeds of Rain Fed Lowland Rice Fields of Laos & Cambodia. Unpublished MSc thesis, University of Leiden ( <a href="http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm">http://www.nationaalherbarium.nl/Riceweedsweb/www/cyanot.htm</a> ).	annual (1, 2) BUT 3. perennial [for genus <i>Cyanotis</i> ]
7.01		
7.02		no evidence
7.03		no evidence
7.04	Flora of Pakistan ( <a href="http://www.efloras.org/florataxon.aspx?flora_id=5&amp;taxon_id=240001180">http://www.efloras.org/florataxon.aspx?flora_id=5&amp;taxon_id=240001180</a> ).	"Capsules 3-4 mm long, trigonous, obtuse, membranous, nearly glabrous...; seeds c. 1.2 mm long, striated or piled." [no evidence of adaptations to wind dispersal]
7.05		no evidence
7.06		
7.07	Flora of Pakistan ( <a href="http://www.efloras.org/florataxon.aspx?flora_id=5&amp;taxon_id=240001180">http://www.efloras.org/florataxon.aspx?flora_id=5&amp;taxon_id=240001180</a> ).	"Capsules 3-4 mm long, trigonous, obtuse, membranous, nearly glabrous...; seeds c. 1.2 mm long, striated or piled." [no evidence of any means of attachment]
7.08		
8.01	Flora of Pakistan ( <a href="http://www.efloras.org/florataxon.aspx?flora_id=5&amp;taxon_id=240001180">http://www.efloras.org/florataxon.aspx?flora_id=5&amp;taxon_id=240001180</a> ).	usually 6 seeds per capsule
8.02		
8.03		
8.04		
8.05		