

Assessment date 5 October 2015

<i>Ipomoea muricata</i> North & CENTRAL		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) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	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 North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	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	2
3.02	Garden/amenity/disturbance weed		
3.03	Weed of agriculture	y	4
3.04	Environmental weed		
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	y	1
4.02	Allelopathic	n	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals		
4.05	Toxic to animals	y	1
4.06	Host for recognised pests and pathogens	unk	0
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
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	unk	0
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	y	1
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	n	0
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 propagation	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	unk	-1
7.06	Propagules bird dispersed	unk	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	unk	-1
8.01	Prolific seed production	n	-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	unk	-1
8.05		?	
Total Score			8
Implemented Pacific Second Screening			no
Risk Assessment Results			High

section	# questions answered	satisfy minimum?
A		9 yes
B		9 yes
C		16 yes
total		34 yes

Assessment date 5 October 2015

<i>Ipomoea muricata</i> South		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) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	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 North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	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	2
3.02	Garden/amenity/disturbance weed		
3.03	Weed of agriculture	y	4
3.04	Environmental weed		
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	y	1
4.02	Allelopathic	n	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals		
4.05	Toxic to animals	y	1
4.06	Host for recognised pests and pathogens	unk	0
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
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	y	1
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	y	1
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	n	0
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 propagation	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	unk	-1
7.06	Propagules bird dispersed	unk	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	unk	-1
8.01	Prolific seed production	n	-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	unk	-1
8.05		?	
Total Score			9
Implemented Pacific Second Screening			no
Risk Assessment Results			High

section	# questions answered	satisfy minimum?
A		9 yes
B		9 yes
C		16 yes
total		34 yes

	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
1.02		
1.03		
2.01	1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnnd.tif). 2. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (8-20-2015).	No computer analysis was performed. 1. Global hardiness zone: 8, 9, 10, 11, 12, 13; equivalent to USDA Hardiness zones: USDA Zone 8a: to -12.2 °C (10 °F) USDA Zone 8b: to -9.4 °C (15 °F) USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F) USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11a: to USDA Zone (40 °F) USDA Zone 11b: to (45 °F) USDA Zone 12a: to (50 °F) USDA Zone 12b: to (55 °F). 2. Native to NORTHERN AMERICA Southern Mexico: Mexico - Guerrero, Yucatan
2.02		
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf).	1. Distribution in the native/cultivated range occurs in Aw, Am, Af, As, Cfa, Cwa
2.04	1. Climate Charts. World Climate Maps. http://www.climate-charts.com/World-Climate-Maps.html#rain (8-19-2015)	1. Native to areas with rainfall within this range. See 2.01 for native regions.
2.05	1. Convolvulaceae Unlimited http://convolvulaceae.myspecies.info/content/ipomoea-muricata-1 (8-21-2015) 2. HISTORY AND TAXONOMY OF THE PURPLE MOONFLOWER, IPOMOEA TURBINATA LAGASCA Y SEGURA Charles R. Gunn Proceedings of the Association of Official Seed Analysts Vol. 59, (1969) , pp. 116-123 Published by: Association of Official Seed Analysts and the Society of Commercial Seed Technologists Stable URL: http://www.jstor.org/stable/23432363	1. Native in tropical America, now pantropical; cultivated and naturalized in China (Henan, Hubei, Hunan, S Yunnan), India, Indonesia, Japan, Kashmir, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Vietnam; Africa. 2. This species has probably been introduced into the United States several times, mostly for value as an ornamental vine.
3.01	1. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?402175 (20 August 2015) 2. Convolvulaceae Unlimited http://convolvulaceae.myspecies.info/content/ipomoea-muricata-1 (8-21-2015) 3. HISTORY AND TAXONOMY OF THE PURPLE MOONFLOWER, IPOMOEA TURBINATA LAGASCA Y SEGURA Charles R. Gunn Proceedings of the Association of Official Seed Analysts Vol. 59, (1969) , pp. 116-123 Published by: Association of Official Seed Analysts and the Society of Commercial Seed Technologists Stable URL: http://www.jstor.org/stable/23432363	1. Naturalized: (links to other web resources are provided for some distributions)AFRICA Macaronesia: Cape VerdeNortheast Tropical Africa: SudanEast Tropical Africa: TanzaniaWest Tropical Africa: Gambia; Nigeria; Senegal; Sierra LeoneSouth Tropical Africa: Angola; Malawi; Mozambique; Zambia; ZimbabweASIA-TEMPERATE Arabian Peninsula: OmanChina: ChinaEastern Asia: Japan ASIATROPICAL Indian Subcontinent: India; Nepal; Pakistan; Sri Lanka Indo-China: Myanmar; VietnamMalesia: Indonesia; PhilippinesNORTHERN AMERICA Southeastern U.S.A.: United States - Arkansas, Florida, Georgia, North Carolina, South Carolina SOUTHERN AMERICA Caribbean: Netherlands Antilles - St. EustatiusMesoamerica: Costa Rica; El Salvador; Honduras; Nicaragua; Panama Northern South America: Venezuela Brazil: Brazil Western South America: Bolivia; Colombia; Ecuador - Guayas; Peru Southern South America: Argentina - Jujuy, Salta; Paraguay 2. 1. Native in tropical America, now pantropical; cultivated and naturalized in China (Henan, Hubei, Hunan, S Yunnan), India, Indonesia, Japan, Kashmir, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Vietnam; Africa. 3. This species has naturalized in the lower Mississippi valley.
3.02		no evidence

3.03	1. HISTORY AND TAXONOMY OF THE PURPLE MOONFLOWER, IPOMOEA TURBINATA LAGASCA Y SEGURA Charles R. Gunn Proceedings of the Association of Official Seed Analysts Vol. 59, (1969) , pp. 116-123 Published by: Association of Official Seed Analysts and the Society of Commercial Seed Technologists Stable URL: http://www.jstor.org/stable/23432363 2. Control of Six Morningglory (Ipomoea) Species in Soybeans (Glycine max) W. D. Mathis and L. R. Oliver Weed Science Vol. 28, No. 4 (Jul., 1980) , pp. 409-415 Published by: Weed Science Society of America and Allen Press Stable URL: http://www.jstor.org/stable/4043497	1. Weed of soybeans in the lower Mississippi valley. In some places the harvest of soybeans was almost impossible due to the mass of weeds during the initial waves of the invasion.
3.04		no evidence
3.05	1. Holm, LeRoy G. A Geographical Atlas of World Weeds. Malabar, FL: Krieger Pub., 1991. Print.	1. Ipomoea triloba is a serious weed in Australia and the Phillipines. Ipomoea Aquatica is a serious weed India, Mozambique and Thailand.
4.01	1. Flora of Pakistan http://www.efloras.org/florataxon.aspx?flora_id=5&taxon_id=210000746 (8-21-2015)	1. No evidence of these features
4.02		no evidence
4.03		no evidence
4.04		no evidence
4.05	1. ASPCA https://www.asPCA.org/pet-care/animal-poison-control/toxic-and-non-toxic-plants/morning-glory (8-19-2015)	1. Morning Glory is toxic to cats and dogs.
4.06		no evidence
4.07	1. Dave's Garden http://davesgarden.com/guides/pf/go/69456/#b (8-20-2015) 2. B and T World Seeds http://b-and-t-world-seeds.com/cartall.asp?species=Ipomoea%20muricata&sref=441151 (8-23-2015)	1. Seed is poisonous if ingested 2. Parts of Ipomoea muricata are considered toxic.
4.08		no evidence
4.09	1. Dave's Garden http://davesgarden.com/guides/pf/go/69456/#b (8-20-2015)	1. Sun to partial shade
4.10	USDA Soil Map http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/use/worldsoils/?cid=nrcs142p2_054013 (8-21-2015)	1. Based on this species native range, it appears only compatible with the soil type of the South Zone. However, soil data from this plant is extremely limited.
4.11	1. Dave's Garden http://davesgarden.com/guides/pf/go/69456/#b (8-20-2015) 2. Flora of Pakistan http://www.efloras.org/florataxon.aspx?flora_id=5&taxon_id=210000746 (8-21-2015)	1. Climber 2. Climbing plant
4.12	1. Dixie Green Lawns http://www.dixiegreenlawns.com/bindweed-morning-glory (8-23-2015)	1. In some places such as Australian bushland, some species of morning glories (bindweed) develop thick roots and tend to grow in dense thickets.
5.01		Family: Convolvulaceae
5.02		Family: Convolvulaceae
5.03		Not a woody plant
5.04	1. Flora of Pakistan http://www.efloras.org/florataxon.aspx?flora_id=5&taxon_id=210000746 (8-21-2015)	1. no evidence of these features
6.01		no evidence

6.02	1. Dave's Garden http://davesgarden.com/guides/pf/go/69456/#b (8-20-2015) 2. Our Beautiful Garden http://www.ourbeautifulgarden.com/2013/01/clove-bean-ipomoea-muricata.html (8-21-2015) 3.	1. Propagates by seed 2. The plant is grown from the seeds inside the fruit itself.
6.03		no evidence
6.04	1. HISTORY AND TAXONOMY OF THE PURPLE MOONFLOWER, IPOMOEA TURBINATA LAGASCA Y SEGURA Charles R. Gunn Proceedings of the Association of Official Seed Analysts Vol. 59, (1969) , pp. 116-123 Published by: Association of Official Seed Analysts and the Society of Commercial Seed Technologists Stable URL: http://www.jstor.org/stable/23432363	1. The flowers may be cross-pollinated or self-pollinated
6.05	1. Dave's Garden http://davesgarden.com/guides/pf/go/69456/#b (8-20-2015) 2. J. Andrew McDonald, A PHYLOGENETIC ASSESSMENT OF BREEDING SYSTEMS AND FLORAL MORPHOLOGY OF NORTH AMERICAN IPOMOEA (CONVOLVULACEAE). J. Bot. Res. Inst. Texas 5(1): 159 – 177. 2011	1. This plant is attractive to bees, butterflies and/or birds 2. Pollinated by hawk-moths
6.06		no evidence
6.07	1. Our Beautiful Garden http://www.ourbeautifulgarden.com/2013/01/clove-bean-ipomoea-muricata.html (8-21-2015)	1. It starts flowering by around 50 days after planting.
7.01		no evidence
7.02	1. Convolvulaceae Unlimited http://convolvulaceae.myspecies.info/content/ipomoea-muricata-1 (8-21-2015) 2. HISTORY AND TAXONOMY OF THE PURPLE MOONFLOWER, IPOMOEA TURBINATA LAGASCA Y SEGURA Charles R. Gunn Proceedings of the Association of Official Seed Analysts Vol. 59, (1969) , pp. 116-123 Published by: Association of Official Seed Analysts and the Society of Commercial Seed Technologists Stable URL: http://www.jstor.org/stable/23432363 3. Flora of Pakistan http://www.efloras.org/florataxon.aspx?flora_id=5&taxon_id=210000746 (8-21-2015)	1. In China, Sri Lanka and India and the species is cultivated as an ornamental for the non-fragrant and nocturnal flowers. 2. This species has probably been introduced into the United States several times, mostly for value as an ornamental vine. 3. This is cultivated for ornament in several countries. Seeds are used in medicine.
7.03	1. HISTORY AND TAXONOMY OF THE PURPLE MOONFLOWER, IPOMOEA TURBINATA LAGASCA Y SEGURA Charles R. Gunn Proceedings of the Association of Official Seed Analysts Vol. 59, (1969) , pp. 116-123 Published by: Association of Official Seed Analysts and the Society of Commercial Seed Technologists Stable URL: http://www.jstor.org/stable/23432363	1. Because the plant grows at the same level as soybeans, it is easy for the seeds to be harvested and dispersed along with soybean crops.
7.04	1. Flora of Pakistan http://www.efloras.org/florataxon.aspx?flora_id=5&taxon_id=210000746 (8-21-2015)	Unlikely, due to seed size
7.05		no evidence
7.06		no evidence
7.07	1. Flora of Pakistan http://www.efloras.org/florataxon.aspx?flora_id=5&taxon_id=210000746 (8-21-2015)	1. No mechanism for attachment listed in the species description.
7.08		no evidence
8.01	1. Flora of Pakistan http://www.efloras.org/florataxon.aspx?flora_id=5&taxon_id=210000746 (8-21-2015)	1. Seed size is likely to large for prolific seed production
8.02		No evidence of seed bank for any species of morning glory

8.03	Control of Six Morningglory (Ipomoea) Species in Soybeans (Glycine max) W. D. Mathis and L. R. Oliver Weed Science Vol. 28, No. 4 (Jul., 1980) , pp. 409-415 Published by: Weed Science Society of America and Allen Press Stable URL: http://www.jstor.org/stable/4043497	1. Can best be controlled through post-emergence herbicide
8.04		no evidence
8.05		no evidence