UF IFAS UNIVERSITY of FLORIDA

Assessment of Non-native Plants in Florida's Natural Areas

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	Ipomoea triloba **ALL ZONEs**	**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	y	4
3.05	Congeneric weed	y	2
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	y	1
4.06	Host for recognised pests and pathogens	y	1
4.07	Causes allergies or is otherwise toxic to humans	y	1
4.08	Creates a fire hazard in natural ecosystems	unk	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	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	n	0
6.02	Produces viable seed	y	1

6.03	Hybridizes naturally	unk	-1
6.04	Self-compatible or apomictic	y	1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	unk	-1
6.07	Minimum generative time (years)	1	1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y	1
7.02	Propagules dispersed intentionally by people	unk	-1
7.03	Propagules likely to disperse as a produce contaminant	y	1
7.04	Propagules adapted to wind dispersal	unk	-1
7.05	Propagules water dispersed	y	1
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	?	
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	**15**	
	Implemented Pacific Second Screening	**No**	
	Risk Assessment Results	**HIGH**	

section	# questions answered	satisfy minimum?
A	10	yes
B	9	yes
C	17	yes
total	36	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%20lgnd.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 (6-30-2016).	No computer analysis was performed. 1. Global hardiness zone: 10, 11, 12, 13 ; equivalent to USDA Hardiness zones: 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 - Campeche, - Chiapas, - Guerrero, - Jalisco, - Michoacan, - Nayarit, - Oaxaca, - Queretaro, - Quintana Roo, - Veracruz, - Yucatan Southern America Caribbean: Bahamas; Cuba; Dominican Republic; Haiti; Jamaica; Trinidad and Tobago Mesoamerica: Belize; Guatemala; Honduras Western South America: Colombia; Ecuador
2.02		
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). GBIF http://www.gbif.org/species/2928547 (6-30-2016)	1. Distribution in the native/cultivated range occurs in As, Am, Aw, Af, Cfa, Cwb
2.04	1. Climate Charts. World Climate Maps. http://www.climate-charts.com/World-Climate-Maps.html#rain (8-19-2015)	1. Native to regions with 29 to 196 inches of rain annually
2.05	1. PIER http://www.hear.org/pier/species/ipomoea_triloba.htm (6-29-2016) 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/28799 (6-29-2016)	1. Introduced to Indonesia, Japan, and Malaysia 2. Introduced to Pakistan, South Africa, and Israel
3.01	1. 1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/28799 (6-29-2016) 3. Queensland Government http://keyserver.lucidcentral.org/weeds/data/media/Html/ipomoea_triloba.htm (6-29-2016)	1. Naturalized in Hawaii 2. Invasive in Australia, China, and Guam. 3. Widely naturalised in northern and eastern Australia. Most common in the northern parts of the Northern Territory and in northern and central Queensland. Also present in the coastal districts of northern Western Australia, in south-eastern Queensland, and on Christmas Island.Naturalised in south-eastern Asia (i.e. the Philippines, Cambodia, Indonesia, Thailand, Malaysia) and on several Pacific islands (i.e. Guam, Niue, Palau, Papua New Guinea and Hawaii).
3.02		
3.03	1. PIER http://www.hear.org/pier/species/ipomoea_triloba.htm (6-29-2016) 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/28799 (6-29-2016) 3. Auld B, Medd R, 1992. Weeds. An illustrated botanical guide to the weeds of Australia. Melbourne, Australia: Inkata Press.	1. It is found in upland cultivated crops, grasslands, waysides and waste places, and because of its creeping, twining habit , may overwhelm other vegetation in farmer's fields and in natural areas. It is found from sea level to 750 m altitude 2. Like other 'morning-glories', it competes with crop plants for nutrients and water. Due to its twining nature, it also fouls mechanical harvesters. It has been noted as one of three morning-glory weeds of cotton fields in Arizona, USA 2. Like other 'morning-glories', it competes with crop plants for nutrients and water. Due to its twining nature, it also fouls mechanical harvesters. It has been noted as one of three morning-glory weeds of cotton fields in Arizona, USA 3. In Queensland, Australia, it occurs as a weed of sugarcane and tropical pastures

3.04	1. Queensland Government http://keyserver.lucidcentral.org/weeds/data/media/Html/ipomoea_triloba.htm (6-29-2016) 2. PIER http://www.hear.org/pier/species/ipomoea_triloba.htm (6-29-2016)	1. Pink convolvulus (Ipomoea triloba) is regarded as an environmental weed in the Northern Territory and northern Queensland, and as an emerging or potential environmental weed in the northern parts of Western Australia. Because of its creeping and twining habit, it may overwhelm other vegetation in natural areas and is a potentially serious weed of the tropical regions of Australia. 2. It is found in upland cultivated crops, grasslands, waysides and waste places, and because of its creeping, twining habit , may overwhelm other vegetation in farmer's fields and in natural areas. It is found from sea level to 750 m altitude
3.05	1. Mabberley, D. J. 2008. The Plant-Book: A portable dictionary of plants, their classification and uses (3). Cambridge University Press, Cambridge. 2. Holm, LeRoy G. A Geographical Atlas of World Weeds. Malabar, FL: Krieger Pub., 1991. Print. 3. Bridges, D. C. (ed.). 1992. Crop Losses Due to Weeds in the United States - 1992. Weed Science Society of America, Champaign, IL, U.S.A. 403 pp.	1. The genus Ipomoea contains approximately 500 species (Mabberley, 2008), and several members of Ipomoea are considered weeds around the world. 2. Ipomoea trifida is a principle weed in Mexico 3. Ipomoea wrightii and I. purpurea are weeds of the United States
4.01	1. 1997. Holm, L.G./Doll, J./Holm, E./Pancho, J.V./Herberger, J.P.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY	No evidence of these characteristics
4.02		no evidence
4.03	1. 1997. Holm, L.G./Doll, J./Holm, E./Pancho, J.V./Herberger, J.P.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY	No evidence of these characteristics
4.04		no evidence
4.05	1. 2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 2. UCANR Publications, Oakland, CA	1. Like Japanese and tall morning glory, seeds of three- lobe morning glory contain alkaloids that are toxic to humans and animals when ingested.
4.06	1. Jackson GVH, Zettler FW, 1983. Sweet potato witches' broom and legume little-leaf diseases in the Solomon Islands. Plant Disease, 67(9):1141-1144 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/28799 (6-29-2016)	1. Studies in the Solomon Islands showed that I. triloba and two other species are alternative hosts for witches' broom disease of sweet potatoes 2. A nematode assessment survey of the vegetable-growing areas of Barangay Sicsican in Talavera, Neuva, Ecija, Philippines found that I. triloba and several other weeds serve as alternative hosts for root-knot nematodes (Meloidogyne javanica and M. incognita). Such alternative hosts play an important role in the nematodes' ability to survive and persist during the rice season before the vegetable season
4.07	1. 2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 2. UCANR Publications, Oakland, CA	1. Like Japanese and tall morning glory, seeds of three- lobe morning glory contain alkaloids that are toxic to humans and animals when ingested.
4.08		no evidence
4.09	1. My Folia https://myfolia.com/plants/42256-ipomoea-triloba-ipomoea-triloba/care_instructions (6-30-2016)	1. Full Sun
4.10		no evidence
4.11	1. Urban Forest http://uforest.org/Species/I/Ipomoea_triloba.html (6-29-2016) 2. Encyclopedia of Life http://eol.org/pages/580914/overview (6-29-2016)	1. A vine that either climbs over or creeps in open areas. 2. climbing plant
4.12		no evidence
5.01		Family: Convolvulaceae
5.02		Family: Convolvulaceae
5.03	1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/28799 (6-29-2016)	1. herbaceous
5.04	1. 1997. Holm, L.G./Doll, J./Holm, E./Pancho, J.V./Herberger, J.P.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY	No evidence of these features
6.01		no evidence

6.02	1. PIER http://www.hear.org/pier/species/ipomoea_triloba.htm (6-29-2016) 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/28799 (6-29-2016) 3. 2012. Chauhan, B.S./Abugho, S.B.. Threelobe Morningglory (Ipomoea triloba) Germination and Response to Herbicides. Weed Science. 60(2): 199-204.	1. Propagation: Seed 2. I. triloba is a twining annual herb that reproduces by seeds 3. The plant is self-fertile and propagates through seeds
6.03		no evidence
6.04	1. 1997. Holm, L.G./Doll, J./Holm, E./Pancho, J.V./Herberger, J.P.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY 2. 2012. Chauhan, B.S./Abugho, S.B.. Threelobe Morningglory (Ipomoea triloba) Germination and Response to Herbicides. Weed Science. 60(2): 199-204.	1. It reproduces by seed, is self-fertile, and can reproduce about 180 seeds/plant. 2. The plant is self-fertile and propagates through seeds
6.05	1. 1970. Schlising, R.A.. Sequence and Timing of Bee Foraging in Flowers of Ipomoea and Aniseia (Convolulaceae). Ecology. 51(6): 1061-1067	1. Flowers of Ipomoea triloba, I. setifera, I. battatas, and Aniseia martinicensis growing in three areas of disturbed vegetation in Costa Rica were visited by a large number of foraging insects during the dry season months of February and March 1967. The commonest foragers collecting pollen or nectar, or both, were bees in the families Anthophoridae, Apidae, Colletidae, and Halictidae. The species of bees varied with the locality and with the species of plant, but an ordered and predictable sequence in groups of foragers was seen throughout the few hours in the morning that the flowers remained open. Each species of bee had a foraging period for a definite portion of the morning, and the peak activity was often at a different time for each species of bee, usually in mid-or late morning. The average time of an individual bee visit to a flower varied also, and the longest individual visits were early in the morning in at least four genera. The average number of insect visits to 106 flowers was about 20, but ranged from 1 to 142. These flowers seemed morphologically well suited for cross pollination, and the bees foraging in them doubtless served as effective pollen vectors.
6.06		no evidence
6.07	1. 1997. Holm, L.G./Doll, J./Holm, E./Pancho, J.V./Herberger, J.P.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY	annual
7.01	1. PIER http://www.hear.org/pier/species/ipomoea_triloba.htm (6-29-2016) 2. 2012. Chauhan, B.S./Abugho, S.B.. Threelobe Morningglory (Ipomoea triloba) Germination and Response to Herbicides. Weed Science. 60(2): 199-204.	1. a weed of roadsides, hedges and gardens; common in a few coastal areas… disturbed sites… old pastures 2. In addition to occurrence in crop fields, it is found in grasslands, waste places, and roadsides.
7.02		no evidence
7.03	1. PIER http://www.hear.org/pier/species/ipomoea_triloba.htm (6-29-2016) 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/28799 (6-29-2016)	1. Can be introduced as a contaminant in rice 2. Seeds of I. triloba have been detected as a contaminant of sesame seeds originating from China, El Salvador and Guatemala
7.04		no evidence
7.05	1. Queensland Government http://keyserver.lucidcentral.org/weeds/data/media/Html/ipomoea_triloba.htm (6-29-2016)	1. In Western Australia, it is currently restricted to the banks of billabongs and in floodplain vegetation at a few sites in the Kimberley region. However, it is a recent introduction to Western Australia and is thought to pose a significant threat to this area. [Common on the edges of waterways]
7.06	1. 1997. Holm, L.G./Doll, J./Holm, E./Pancho, J.V./Herberger, J.P.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY	[No evidence of bird dispersal, and the seed is not fleshy fruited]
7.07	1. 1997. Holm, L.G./Doll, J./Holm, E./Pancho, J.V./Herberger, J.P.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY	no evidence of a mechanism for attachment
7.08	1. 2012. Blake, S./Wikelski, M./Cabrera, F./Guezou, A./Silva, M./Sadeghayobi, E./Yackulic, C.B./Jaramillo, P.. Seed dispersal by Galapagos tortoises. Journal of Biogeography. 39: 1961- 1972.	Table 1 Summary data indicating the frequency of occurrence of intact seeds in dung piles of tortoises (Chelonoidis nigra) found in farmland and in the Galapagos National Park on the island of Santa Cruz." [Ipomoea triloba seeds passed intact through tortoises]

8.01	1. 1997. Holm, L.G./Doll, J./Holm, E./Pancho, J.V./Herberger, J.P.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY	1. It reproduces by seed, is self-fertile, and can reproduce about 180 seeds/plant.
8.02	1. 2006. Ogunwenmo, K.O.. Variation in fruit and seed morphology, germination and seedling behaviour of some taxa of Ipomoea L. (Convolvulaceae). Feddes Repertorium. 117(3–4): 207-216.	Seed germination varied among the taxa of Ipomoea in soil. Whereas, some taxa observed a period of dormancy ranging from three to over six months in soil [I. pileata ROXB. subsp. uniflora UGBOR. & OGUNW., I. cairica (L.) SWEET var. cairica, I. pes-caprae (L.) R.BR. subsp. brasiliensis (L.) OOSTSTR. and I. carnea JACQ. subsp. fistulosa (MART. ex CHOISY) D.F.AUSTIN], others did not [I. triloba L
8.03	1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/28799 (6-29-2016) 2. 2012. Chauhan, B.S./Abugho, S.B.. Threelobe Morningglory (Ipomoea triloba) Germination and Response to Herbicides. Weed Science. 60(2): 199-204.	1. Maize Field studies to evaluate different herbicides and herbicide combinations in the Philippines showed that pendimethalin alone failed to control I. triloba in maize cv. Pioneer 6181 (Jover et al., 1982). Madrid and Manimtim (1978a) found that atrazine provided good control of broad-leaved weeds, including I. triloba; however, oxyfluorfen provided good control for I. triloba but killed the maize. Sugarcane and Sorghum Research by the Hawaiian Sugar Planters' Association indicated that metsulfuron provided good control of I. triloba (Santo, 1989). In another Hawaiian study, conducted during the first 4-6 months of sugarcane growth until the canopy closed, atrazine was found to give excellent control of several broadleaved weeds, including I. triloba (Olney, 1971). Field trials in sugarcane and sorghum in New South Wales and Queensland (Australia) during 1982-86, showed that I. triloba was moderately susceptible to fluroxypyr, but was controlled with a tank mixture of fluroxypyr and 2,4-D (Webb and Feez, 1987). Hondrade (1981) found that pendimethalin was ineffective in controlling I. triloba in sugarcane. In field trials in the Burdekin District of Queensland, 2,4-D and MCPA applied to sugarcane at hilling up gave good control of I. triloba, I. plebeia and I. purpurea, and provided an economical and reliable alternative to aerial spraying. The major Burdekin cane cultivars, Q96 and Q80, could be treated without risk of damage. 2,4-D was the least expensive of the treatments (on the basis of the cost of chemical). Extensive commercial spraying showed that 2,4,5,-T [superseded] could be used to maintain satisfactory weed control, but that higher rates were needed where Cucumis metuliferus or Passiflora subpeltata were also
8.04		no evidence
8.05		no evidence