

<i>Liriope spicata</i> (Lilyturf, Liriope, Monkey-grass, Border-grass)		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 FL climates (USDA hardiness 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).	y	1
2.04	Native or naturalized with mean annual precipitation of 40-70 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	y	2
3.03	Weed of agriculture		
3.04	Environmental weed		
3.05	Congeneric weed		
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	y	1
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	y	1
4.10	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	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		
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)		
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n	-1
7.02	Propagules dispersed intentionally by people	y	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	y	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	y	1
8.05	Effective natural enemies present in Florida, or east of the continental divide.		
Total Score		6	
Implemented Pacific Second Screening		Yes	
Risk Assessment Results		Reject*	

*Can become invasive in a cultivated area and is unpalatable to grazers.

	Reference	Source data
1.01	1. Flora of China, www.eFloras.org. 2. No reference.	1. Widely cultivated in China for its tuberous roots, which are used medicinally. 2. Cultivated widely, 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-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948). 3. Pacific Island Ecosystems at Risk (PIER). http://www.hear.org/ . 4a-b. Horticopia professional software. http://www.horticopia.com/ .	No computer analysis was performed. 1. World hardiness zones: (7?-)8-12(-13?). 2. Native distributional range: Asia-Temperate (China, Japan, Taiwan); Asia-Tropical (Vietnam). 3. Native range: China, Korea, Japan, Taiwan, Vietnam. 4.a. Hardy range (USA): 4b-10a. 4.b. Native to China and Japan.
2.02		No computer analysis was performed. Native range is well known; refer to 2.01 source data.
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 range is widespread and most likely occurs in more than 3 climatic groups.
2.04	1. Globalis (http://globalis.gvu.unu.edu/).	1. 24"-118" (600 mm-3000 mm)
2.05	1. USDA, NRCS. 2011. The PLANTS Database (http://plants.usda.gov , 24 March 2011). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. 2. Georgia Exotic Plant Pest Council, http://www.gaepcc.org .	1. Alabama, Florida, Illinois, Maryland, Mississippi. 2. Classified as a Category 4 plant in Georgia (i.e., exotic plant that is naturalized in GA but generally does not pose a problem in GA natural areas or a potentially invasive plant in need of additional information to determine its true status).
3.01	1. Horticopia professional software. http://www.horticopia.com/ . 2. Kemper Center for Home Gardening, Missouri Botanical Garden, http://www.mobot.org/gardeninghelp/plantinfo.shtml .	1. Naturalizing. 2. Will naturalize.
3.02	1. Kemper Center for Home Gardening, Missouri Botanical Garden, http://www.mobot.org/gardeninghelp/plantinfo.shtml . 2. Fantz, P.R. 2008. Species of <i>Liriope</i> cultivated in the southeastern United States. <i>HortTechnology</i> , 18(3): 343-348	1. Can be somewhat invasive. 2. <i>Liriope spicata</i> is aggressive and invasive with age.
3.03		
3.04		
3.05		
4.01		
4.02		No evidence.
4.03		

4.04	1. The Morton Arboretum. <i>Plants not Favored by Deer</i> . http://m.extension.illinois.edu/wildlife/files/plants_deer_a_void.pdf .	1. <i>L. spicata</i> is present on list of plants that are not favored by deer.
4.05		No evidence.
4.06	1. Kemper Center for Home Gardening, Missouri Botanical Garden, http://www.mobot.org/gardeninghelp/plantinfo.shtml .	1. No serious insect or disease problems.
4.07	1. US Forest Service, Pacific Island Ecosystems at Risk (PIER). Online resource at http://www.hear.org/pier/ accessed [28 March 2011]. 2. Flora of China, www.eFloras.org .	1. This plant is considered mostly allergy free and causes little or no allergy problems in most people (Hortiscopia A-Z. Hortiscopia, Inc., Purcellville, VA. ISBN 1-887215-07-7). 2. Widely cultivated in China for its tuberous roots, which are used medicinally.
4.08	1. "SP685 Landscaping Guidelines to Protect Your Home from Wildfire," The University of Tennessee Agricultural Extension Service, SP685-13.5M-10/06 R12-4910-065-011-07 07-0075, http://trace.tennessee.edu/utk_agexfores/85 . 2. US Forest Service, Pacific Island Ecosystems at Risk (PIER). Online resource at http://www.hear.org/pier/ accessed [28 March 2011].	1. Species is listed as ground cover for fire-wise homes. 2. On the "fire-safe plant varieties" list (http://www.monrovia.com/MonroviaWeb.nsf/0/02204fa78af2ff2d88256bde000532e9?OpenDocument).
4.09	1. Hortiscopia professional software. http://www.hortiscopia.com/ . 2. Kemper Center for Home Gardening, Missouri Botanical Garden, http://www.mobot.org/gardeninghelp/plantinfo.shtml . 3. Fantz, P.R. 2008. Species of <i>Liriope</i> cultivated in the southeastern United States. <i>HortTechnology</i> , 18(3): 343-348	1. Exposure: Full shade to full sun. 2. In full sun to part shade. 3. Grow in filtered sun to full shade.
4.10	1. Hortiscopia professional software. http://www.hortiscopia.com/ .	1. Suitable soil is well-drained/loamy, sandy or clay; the pH preference is an acidic to alkaline soil. 2. Easily grown in average, medium, well-drained soil; prefers moist, fertile soils.
4.11		
4.12		
5.01	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948) [Fantz, P.R. 2008. Species of <i>Liriope</i> cultivated in the southeastern United States. <i>HortTechnology</i> , 18(3): 343-348].	1. Family: <i>Ruscaceae</i> (although other sources are placing it in the <i>Liliaceae</i> family and was formally assigned in other these families: <i>Convallariaceae</i> , <i>Haemodoraceae</i> , and <i>Ophiopogonaceae</i> [Fantz 2008]).
5.02	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948) [Fantz, P.R. 2008. Species of <i>Liriope</i> cultivated in the southeastern United States. <i>HortTechnology</i> , 18(3): 343-348].	1. Family: <i>Ruscaceae</i> (although other sources are placing it in the <i>Liliaceae</i> family and was formally assigned in other these families: <i>Convallariaceae</i> , <i>Haemodoraceae</i> , and <i>Ophiopogonaceae</i> [Fantz 2008]).

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6.01		
6.02	1. Dave's Garden. http://davesgarden.com/ .	1. From seed, directly sow outdoors in fall; in winter sow in vented containers, coldframe or unheated greenhouse; or stratify if sowing indoors.
6.03	1. Deputy, J. 1999. "OF-29 <i>Liriope</i> , the "Other" Mondo Grass." <i>Ornamentals and Flowers</i> . Cooperative Extension Service, College of Tropical Agricultural and Human Resources, University of Hawaii at Manoa.	1. Liriope, and to a lesser degree the mondo grasses, are fertile and hybridize freely.
6.04		
6.05	1. Hongjun, Z. et. al. 2003. A preliminary study on pollination biology and mating system of <i>Liriope spicata</i> . <i>Journal of Beijing Normal University (Natural Science)</i> , 39(5): 669-673.	1. Wind pollination does not exist in this area (i.e., Beijing). The flowers of this species are pollinated/visited by insects, of which <i>Apis mellifera</i> L and <i>Nomia chalybeate</i> Sm. [sic, <i>Nomia chalybeata</i> Sm.] contribute most.
6.06	1. Kemper Center for Home Gardening, Missouri Botanical Garden, http://www.mobot.org/gardeninghelp/plantinfo.shtml . 2. Fantz, P.R. 2008. Species of <i>Liriope</i> cultivated in the southeastern United States. <i>HortTechnology</i> , 18(3): 343-348.	1. Spreads quickly by underground rhizomes to form colonies. 2. Plants rhizomatous with many daughter plants forming a green carpet.
6.07	1. Kemper Center for Home Gardening, Missouri Botanical Garden, http://www.mobot.org/gardeninghelp/plantinfo.shtml .	1. Spreads quickly by underground rhizomes to form colonies, and can be quite aggressive.
7.01		
7.02	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948).	1. Economic importance: ornamental.
7.03		
7.04		No adaptations for wind dispersal.
7.05		No adaptations for water dispersal.
7.06	1. Corlett, R.T. 1996. Characteristics of vertebrate-dispersed fruits in Hong Kong. <i>Journal of Tropical Ecology</i> , 12: 819-833.	1. Observed bird-dispersal.

7.07		No adaptations for seed to be transported externally.
7.08		
8.01	1. US Forest Service, Pacific Island Ecosystems at Risk (PIER). Online resource at http://www.hear.org/pier/ accessed [28 March 2011].	1. Fruits are not produced in abundance.; blue-black berrylike fruits.; Fruit length: less than .5 inch; Fruit cover: fleshy; Fruit color: black (relatatively large fruits, not in abundance [Horticopia A-Z.Horticopia, Inc., Purcellville, VA. ISBN 1-887215-07-7]).
8.02	1. Dave's Garden. http://davesgarden.com/ .	1. Seed does not store well; sow as soon as possible.
8.03	1. Deputy, J. 1999. "OF-29 <i>Liriope</i> , the "Other" Mondo Grass." <i>Ornamentals and Flowers</i> . Cooperative Extension Service, College of Tropical Agricultural and Human Resources, University of Hawaii at Manoa.	1. The preemergence herbicide Goal® (oxyfluorfen) causes more severe damage to lirope and should be avoided (http://www2.ctahr.hawaii.edu/oc/freepubs/pdf/liriope.pdf).
8.04	1. 1. Kemper Center for Home Gardening, Missouri Botanical Garden, http://www.mobot.org/gardeninghelp/plantinfo.shtml . 2. Deputy, J. 1999. "OF-29 <i>Liriope</i> , the "Other" Mondo Grass." <i>Ornamentals and Flowers</i> . Cooperative Extension Service, College of Tropical Agricultural and Human Resources, University of Hawaii at Manoa.	1. Mow in early spring to remove old foilage. 2. The incidence of both disease and insect problems can be reduced by mowing or pruning the old foliage in late winter, especially if the cut leaves are removed.
8.05		