

Taxon: <i>Yucca gloriosa</i> L.	Family: Asparagaceae
Common Name(s): palmilija Spanish dagger	Synonym(s): <i>Yucca acuminata</i> Sweet <i>Yucca acutifolia</i> Truff. <i>Yucca ellacombei</i> Baker <i>Yucca ensifolia</i> Groenl. <i>Yucca integerrima</i> Stokes <i>Yucca obliqua</i> Haw. <i>Yucca patens</i> André <i>Yucca plicata</i> (Carrière) K.Koch <i>Yucca plicatilis</i> K.Koch <i>Yucca pruinosa</i> Baker <i>Yucca tortulata</i> Baker

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 15 Nov 2017
WRA Score: 11.0	Designation: H(HPWRA)	Rating: High Risk

Keywords: Naturalized, Weedy Succulent, Spine-tipped Leaves, Moth-pollinated

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	Intermediate
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	y
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	y
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed		
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	y
401	Produces spines, thorns or burrs	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	y
405	Toxic to animals		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	y
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal		
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y

Qsn #	Question	Answer Option	Answer
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Eggle, U. (ed.). 2001. Illustrated Handbook of Succulent Plants: Monocotyledons. Springer-Verlag, Berlin, Heidelberg, New York	[Assessment of wild type. Possible that cultivars have trait that could reduce invasion risk] "Probably the most widely grown Yucca species with many cultivars, hybrids and selections."
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	Intermediate
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Nov 2017]	"Native: Northern America Southeastern U.S.A.: United States - Alabama, - Florida, - Georgia, - Louisiana, - Mississippi, - North Carolina, - South Carolina"
202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Nov 2017]	
203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Gilman, E. F. (1999). Yucca gloriosa Spanish Dagger, Mound Lily Yucca. Fact Sheet FPS-616. University of Florida IFAS Extension, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 9 Nov 2017]	"USDA hardiness zones: 6 through 11" [Able to grow in 6 hardiness zones, demonstrating some environmental versatility]
	Plants for a Future. 2017. Yucca gloriosa. http://www.pfaf.org . [Accessed 9 Nov 2017]	"USDA hardiness: 6-11"

Qsn #	Question	Answer
204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Preferred Climate/s: Mediterranean, Subtropical, Tropical Origin: C Asia, Europe, N Am"
	Floridata. 2017. <i>Yucca gloriosa</i> . https://floridata.com/Plants/Agavaceae/Yucca%20gloriosa/114 . [Accessed 12 Nov 2017]	[Marginally sub-tropical] "Mound-lily yucca, <i>Yucca gloriosa</i> , occurs naturally on coastal dunes and shell mounds near the Atlantic from North Carolina to northeast Florida." ... "Hardiness: USDA Zones 7 - 11."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Native to the eastern U.S. from Florida to North Carolina, this shrubby <i>Yucca</i> is occasionally cultivated in Hawaii, more frequently at middle elevations on Maui and the Big Island than on Oahu. It tolerates salt exposure and could perhaps be used more in coastal plantings, as it already is on Kauai,"
	Eggle, U. (ed.). 2001. Illustrated Handbook of Succulent Plants: Monocotyledons. Springer-Verlag, Berlin, Heidelberg, New York	"Probably the most widely grown <i>Yucca</i> species with many cultivars, hybrids and selections ..."
	Silva, V., Figueiredo, E., & Smith, G. F. (2015). Alien succulents naturalised and cultivated on the central west coast of Portugal. <i>Bradleya</i> , 33, 58-81	" <i>Yucca gloriosa</i> is very cold- and drought-hardy and is widely grown in continental Europe, as far afield as the Czech Republic and Slovakia with their severe winters."
	Imada, C.T., Staples, G.W. & Herbst, D.R. 2005. Annotated Checklist of Cultivated Plants of Hawai'i. http://www2.bishopmuseum.org/HBS/botany/cultivatedplants/ . [Accessed 9 Nov 2017]	" <i>Yucca gloriosa</i> Linnaeus (Confirmed) Common Names: Spanish-bayonet First Collected: 1930 Locations: Ho'omaluhia Botanical Garden Koko Crater Botanical Garden"

301	Naturalized beyond native range	y
	Source(s)	Notes
	Merino, F. F., & Donat, P. M. (2011). Invasive plants in the coastal vegetal communities in Valencia (Spain). <i>Notulae Botanicae Horti Agrobotanici Cluj-Napoca</i> , 39(1): 9-17	" <i>Carpobrotus edulis</i> in many cases is accompanied by other invasive species as <i>Yucca gloriosa</i> (2000 m2) and <i>Agave</i> spp. (11% of land area covered by invasive species)."

Qsn #	Question	Answer
	Galasso, G. et al. (2017). Notulae to the Italian alien vascular flora: 3. Italian Botanist 3: 49-71	"Status change from naturalized to invasive alien for the flora of Toscana. <i>Yucca gloriosa</i> , native to North America, is currently recognized as naturalized in Toscana (Ciccarelli et al. 2015). During field surveys conducted along the coastal part of the Migliarino-San Rossore-Massaciuccoli Regional Park, we noted a widespread diffusion of the species. Its high frequency along the Tuscan coast can be also deduced from several floristic records (Peruzzi and Bedini 2015 onwards, Roma-Marzio et al. 2016 and literature cited therein). Based on our field observations, the species shows a high clonal propagation capacity, determining modifications in vegetation and ecosystem dynamics. In addition, the ad hoc LIFE project DUNETOSCA (http://ec.europa.eu/environment/life/project/Projects/), conducted in 2010–2013, failed to eradicate the species. Based on these considerations, we regard the status of invasive alien to be most appropriate for <i>Y. gloriosa</i> in Toscana."
	Galanos, C. J. (2015). The alien flora of terrestrial and marine ecosystems of Rodos island (SE Aegean), Greece. <i>Willdenowia</i> , 45(2), 261-278	"The alien flora of the Greek island of Rodos (SE Aegean) is presented. This study is based on fieldwork carried out by the author up to June 2015, as well as on the literature found to date. The present checklist consists of 101 alien taxa of vascular plants, of which 27 are recorded for the first time as new for the alien flora of Rodos. Of these, 14 are also new for the alien flora of Greece. Of these, seven are naturalized: <i>Austrocylindropuntia subulata</i> , <i>Erythrina lysistemon</i> , <i>Ficus microcarpa</i> , <i>Myoporum tenuifolium</i> , <i>Senecio angulatus</i> , <i>Washingtonia filifera</i> and <i>Yucca gloriosa</i> " ... " <i>Yucca gloriosa</i> L., N, neo, Amer. – Not previously recorded from Greece regardless of status (established or not). According to the DAISIE Database, <i>Y. gloriosa</i> is established in Great Britain. Spontaneous plants were observed to be established very well, mainly in streams, coastal habitats, along forest roads and abandoned sites."
	Hadžiablahović, S., Redžić, S., & Bulić, Z. (2011). New species in the alien flora of Montenegro. <i>Herbologia</i> , 12 (1): 103-109	"The following taxa are reported as a new for the Montenegrin alien flora as a casuals: <i>Acer saccharinum</i> L., <i>Narcissus polyanthos</i> Loisel., <i>Ocimum basilicum</i> L., <i>Jasminum nudiflorum</i> Lindl. and <i>Yucca gloriosa</i> L.;"
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. 2017. Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/ . [Accessed 9 Nov 2017]	No evidence to date

Qsn #	Question	Answer
302	Garden/amenity/disturbance weed	y
	Source(s)	Notes
	Brunel, S., Brundu, G., & Fried, G. (2013). Eradication and control of invasive alien plants in the Mediterranean Basin: towards better coordination to enhance existing initiatives. EPPO Bulletin, 43(2), 290-308	[Controlled in a coastal park. Impacts unspecified] "Table 2 Invasive alien species recorded to be subject to control actions in Mediterranean countries ... <i>Yucca gloriosa</i> - Italy - Ente Parco Regionale Migliarino San Rossore Massaciucoli. The species is locally abundant in back dunes. Mechanical and chemical controls are being undertaken followed by monitoring."
	WRA Specialist. 2017. Personal Communication	A potential environmental weed. Documentation of specific impacts is lacking at this time, so conservatively classified as a more general weed/escapee
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Cited in numerous sources as naturalized and/or a weed in a number of locations. Impacts are unspecified or ambiguous.

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

Qsn #	Question	Answer
304	Environmental weed	
	Source(s)	Notes
	Merino, F. F., & Donat, P. M. (2011). Invasive plants in the coastal vegetal communities in Valencia (Spain). <i>Notulae Botanicae Horti Agrobotanici Cluj-Napoca</i> , 39(1): 9-17	" <i>Carpobrotus edulis</i> in many cases is accompanied by other invasive species as <i>Yucca gloriosa</i> (2000 m ²) and <i>Agave</i> spp. (11% of land area covered by invasive species)." [Presumably occupies area to the exclusion of native vegetation]
	Brunel, S., Brundu, G., & Fried, G. (2013). Eradication and control of invasive alien plants in the Mediterranean Basin: towards better coordination to enhance existing initiatives. <i>EPO Bulletin</i> , 43(2), 290-308	[Controlled in a coastal park. Impacts unspecified, but presumably controlled to prevent negative effects on natural environment and/or human use of area] "Table 2 Invasive alien species recorded to be subject to control actions in Mediterranean countries ... <i>Yucca gloriosa</i> - Italy - Ente Parco Regionale Migliarino San Rossore Massaciuccoli. The species is locally abundant in back dunes. Mechanical and chemical controls are being undertaken followed by monitoring."
	Galasso, G. et al. (2017). Notulae to the Italian alien vascular flora: 3. <i>Italian Botanist</i> 3: 49-71	[Invasive. Potential environmental weed] "Status change from naturalized to invasive alien for the flora of Toscana. <i>Yucca gloriosa</i> , native to North America, is currently recognized as naturalized in Toscana (Ciccarelli et al. 2015). During field surveys conducted along the coastal part of the Migliarino-San Rossore Massaciuccoli Regional Park, we noted a widespread diffusion of the species. Its high frequency along the Tuscan coast can be also deduced from several floristic records (Peruzzi and Bedini 2015 onwards, Roma-Marzio et al. 2016 and literature cited therein). Based on our field observations, the species shows a high clonal propagation capacity, determining modifications in vegetation and ecosystem dynamics. In addition, the ad hoc LIFE project DUNETOSCA (http://ec.europa.eu/environment/life/project/Projects/), conducted in 2010–2013, failed to eradicate the species. Based on these considerations, we regard the status of invasive alien to be most appropriate for <i>Y. gloriosa</i> in Toscana."

305	Congeneric weed	Y
	Source(s)	Notes
	Queensland Government. 2017. Weeds of Australia - <i>Yucca aloifolia</i> . https://keyserver.lucidcentral.org/weeds/data/media/Html/ . [Accessed 12 Nov 2017]	"This species is widespread but scattered in Australia, and is mainly found in coastal districts. It has been recorded in south-eastern and central Queensland, in some parts of eastern New South Wales, in the ACT and in south-western Western Australia. It is also sparingly naturalized on Lord Howe Island. Also naturalised overseas in other parts of the Caribbean (e.g. Puerto Rico and the Virgin Islands) and in New Caledonia. Notes - <i>Yucca</i> (<i>Yucca aloifolia</i>) is regarded as an environmental weed in New South Wales and as a potential environmental weed or "sleeper weed" in other parts of Australia."
	Tilley, N. 2017. Getting Rid Of <i>Yucca</i> Plants– How To Remove A <i>Yucca</i> Plant. https://www.gardeningknowhow.com . [Accessed 12 Nov 2017]	"While typically grown for ornamental reasons, many people find <i>yucca</i> plants to be welcome additions to the landscape. Others, however, consider them to be problems. In fact, due to their rapid growth and vast root system, <i>yucca</i> plants can quickly become a nuisance. Although these plants are difficult to eradicate once established, with persistence you can win the battle of removing <i>yucca</i> plants in the garden."

Qsn #	Question	Answer
	<p>Young, S.L., Mues, N.L., & Anderson, D. L. 2011. Managing Soapweed Yucca. G2086. University of Nebraska–Lincoln Extension, Lincoln, NE. ianrpubs.unl.edu/</p>	<p>[Native plant managed as a pasture weed] "Soapweed yucca (<i>Yucca glauca</i> Nutt.), hereafter referred to as yucca, is a native perennial shrub found throughout much of Nebraska and the Great Plains (Figure 1) including central Canada and the Texas Panhandle. Prior to European settlement, Native Americans used yucca for food, fiber, and shampoo. It is used in landscapes as an ornamental, but generally is considered a nuisance in pastures, ranges, and rights-of-way. It can reach densities of up to 2,000 plants per acre. Moderate to dense populations of yucca can decrease the quality and availability of forage, which negatively affects livestock and wildlife. The erect, upright leaves of yucca can injure animals and humans." ... "Yucca is difficult to control in pasture and rangeland situations, but with the right treatment(s) that removes or kills both aboveground and belowground structures, success can be achieved. In the case of chemical control, care must be taken to match the size of yucca with the herbicide rate and mixture needed for effective control. Weed control with herbicides alone often results in reinfestation of the pasture or rangeland. Without plans to revegetate following the elimination of yucca, repeat applications will be necessary to provide control for any length of time. Longterm weed control requires a combination of treatments that promote healthy, dense forage that can successfully compete with and prevent the establishment of yucca."</p>
	<p>Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall</p>	<p><i>Yucca aloifolia</i>, <i>Yucca brevifolia</i>, <i>Yucca elata</i>, <i>Yucca elephantipes</i>, <i>Yucca filamentosa</i>, <i>Yucca flaccida</i>, <i>Yucca gigantea</i>, <i>Yucca glauca</i>, <i>Yucca guatemalensis</i>, <i>Yucca recurvifolia</i>, <i>Yucca rupicola</i>, <i>Yucca torreyi</i>, & <i>Yucca treculeana</i> listed as naturalized and/or weeds</p>

401	Produces spines, thorns or burrs	y
	Source(s)	Notes
	<p>Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI</p>	<p>"The wickedly sharp-pointed leaves are dangerous to people and pets, which limits the utility of this yucca near homes or areas with pedestrian traffic."</p>
	<p>Gardiner, J. 2011. The Timber Press Encyclopedia of Flowering Shrubs. Timber Press, Portland, OR</p>	<p>[Leaves spine-tipped] "An evergreen plant with very long, spine-tipped, lance-shaped, blue-green leaves formed in a rosette at the top of a stout stem ..."</p>

402	Allelopathic	
	Source(s)	Notes

Qsn #	Question	Answer
	Kemertelidze, E. P., Benidze, M. M., & Skhirtladze, A. V. (2009). Steroid compounds from <i>Yucca gloriosa</i> L. introduced into Georgia and their applications. <i>Pharmaceutical Chemistry Journal</i> , 43(1), 45-47	[No evidence of inhibitory effects] "A plantation of <i>Yucca gloriosa</i> L. (mound-lily yucca) was created in eastern Georgia as a source of the sapogenin tigogenin and for raw material for the synthesis of steroidal hormone preparations of the 5 β series. Leaves drying on the lower tier of the living plant contained only spirostanol glycosides." ... "The steroid glycosides of MLY have found uses in allelopathy. The total preparation Alexin, prepared from the flowers, contains up to 50% furo- and spirostanol glycosides, which have membranotropic activity and are involved in metabolic processes; in all probability, they function as bioregulators of plant substance metabolism. Pre-sowing seed treatment or spraying of saplings with low concentrations (0.0025 – 0.005%) of aqueous Alexin produce 20 – 55% increases in the yields of wheat, barley, beans, soy, tomatoes, and potatoes. At the same time, it improves the quality and provides for ecologically clean production."

403	Parasitic	n
	Source(s)	Notes
	Flora of North America Editorial Committee. 2002. <i>Flora of North America: North of Mexico</i> , Volume 26. Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, Oxford, UK	"Plants forming colonies of rosettes, caulescent, arborescent, simple or more often branching. Stems erect, to 5 m. Leaf blade erect or recurving, green or blue-green, lanceolate or sword shaped, flattened, concave distally, thin, 40–100 × 3.5–6 cm, rigid or flexible, glaucous at least when young, margins entire or roughly and minutely denticulate, often becoming filiferous with straight fibers, yellow or brown, opaque." [Asparagaceae. No evidence]

404	Unpalatable to grazing animals	y
	Source(s)	Notes
	NC State Extension. 2017. <i>Yucca gloriosa</i> . https://plants.ces.ncsu.edu/plants/all/yucca-gloriosa/ . [Accessed 12 Nov 2017]	"Particularly resistant to damage by deer." [Suggests lack of palatability]
	Loewer, P. 2015. <i>Solving Deer Problems: How to Deerproof Your Yard and Garden</i> . Skyhorse Publishing, Inc., New York	[Yes, due to spiny leaves] "Yuccas are large-scale American desert plant found in most of the country. They produce stiff, sword-shaped leaves up to four feet long, often tipped with a needle-like spine."

405	Toxic to animals	
	Source(s)	Notes
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Irritant"
	Useful Tropical Plants Database. 2017. <i>Yucca gloriosa</i> . http://tropical.theferns.info/viewtropical.php?id=Yucca+gloriosa . [Accessed 14 Nov 2017]	"The roots contain saponins[222]. Whilst saponins are quite toxic to people, they are poorly absorbed by the body and so tend to pass straight through. They are also destroyed by prolonged heat, such as slow baking in an oven. Saponins are found in many common foods such as beans[K]. Saponins are much more toxic to some creatures, such as fish, and hunting tribes have traditionally put large quantities of them in streams, lakes etc in order to stupefy or kill the fis [K]."

Qsn #	Question	Answer
	Wag! 2017. Yucca Poisoning in Dogs. https://wagwalking.com/condition/yucca-poisoning . [Accessed 14 Nov 2017]	[Potentially Yes] "The poisonous compounds in the yucca are the steroidal saponins. This agent has the capability to foam when consumed and that is what causes the intestinal upset in your dog. Even though the yucca has an unpleasant taste, many dogs will eat it anyway, causing symptoms that range from vomiting to increased heart rate. If you believe your dog has consumed any part of a yucca, visit your veterinarian or animal hospital right away."

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Gilman, E. F. (1999). <i>Yucca gloriosa</i> Spanish Dagger, Mound Lily Yucca. Fact Sheet FPS-616. University of Florida IFAS Extension, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 9 Nov 2017]	"Pests and Diseases - Pest problems include scale and yucca moth larvae, which may bore through and weaken the terminal shoot. Leaf spot can be a problem in areas with poor air circulation."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Irritant. Used in steam bath for swelling. The antifungal activity of a crude steroidal glycoside extract from <i>Yucca gloriosa</i> flowers, named alexin, was investigated in vitro against a panel of human pathogenic fungi, yeasts as well as dermatophytes and filamentous species."
	Plants for a Future. 2017. <i>Yucca gloriosa</i> . http://www.pfaf.org . [Accessed 9 Nov 2017]	"The roots contain saponins [222]. Whilst saponins are quite toxic to people, they are poorly absorbed by the body and so tend to pass straight through. They are also destroyed by prolonged heat, such as slow baking in an oven. Saponins are found in many common foods such as beans[K]. Saponins are much more toxic to some creatures, such as fish, and hunting tribes have traditionally put large quantities of them in streams, lakes etc in order to stupefy or kill the fish [K]."
	Floridata. 2017. <i>Yucca gloriosa</i> . https://floridata.com/Plants/Agavaceae/Yucca %20gloriosa/114 . [Accessed 12 Nov 2017]	"The sap may cause dermatitis (skin irritation) in some individuals."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Flora of North America Editorial Committee. 2002. <i>Flora of North America: North of Mexico, Volume 26</i> . Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, Oxford, UK	"Plants forming colonies of rosettes, caulescent, arborescent, simple or more often branching." [No evidence of increased fire risk in native range]

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	Plants for a Future. 2017. <i>Yucca gloriosa</i> . http://www.pfaf.org . [Accessed 9 Nov 2017]	"It can grow in semi-shade (light woodland) or no shade."

Qsn #	Question	Answer
	Gilman, E. F. (1999). <i>Yucca gloriosa</i> Spanish Dagger, Mound Lily Yucca. Fact Sheet FPS-616. University of Florida IFAS Extension, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 9 Nov 2017]	"Light requirement: plant grows in part shade/part sun"
	Floridata. 2017. <i>Yucca gloriosa</i> . https://floridata.com/Plants/Agavaceae/Yucca %20gloriosa/114 . [Accessed 12 Nov 2017]	"Light: Full sun is best but will tolerate partial shade."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	NC State Extension. 2017. <i>Yucca gloriosa</i> . https://plants.ces.ncsu.edu/plants/all/yucca-gloriosa/ . [Accessed 12 Nov 2017]	"Site: Sun; range of soil types"
	Plants for a Future. 2017. <i>Yucca gloriosa</i> . http://www.pfaf.org . [Accessed 12 Nov 2017]	"Thrives in any soil but prefers a sandy loam and full exposure to the south[11]. Plants are hardier when grown on poor sandy soils[200]. Established plants are very drought resistant[190]."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Flora of North America Editorial Committee. 2002. <i>Flora of North America: North of Mexico, Volume 26. Magnoliophyta: Liliidae: Liliales and Orchidales</i> . Oxford University Press, Oxford, UK	"Plants forming colonies of rosettes, caulescent, arborescent, simple or more often branching. Stems erect, to 5 m. Leaf blade erect or recurving, green or blue-green, lanceolate or sword shaped, flattened, concave distally, thin, 40–100 × 3.5–6 cm, rigid or flexible, glaucous at least when young, margins entire or roughly and minutely denticulate, often becoming filiferous with straight fibers, yellow or brown, opaque."

412	Forms dense thickets	
	Source(s)	Notes
	Merino, F. F., & Donat, P. M. (2011). Invasive plants in the coastal vegetal communities in Valencia (Spain). <i>Notulae Botanicae Horti Agrobotanici Cluj-Napoca</i> , 39(1): 9-17	" <i>Carpobrotus edulis</i> in many cases is accompanied by other invasive species as <i>Yucca gloriosa</i> (2000 m ²) and <i>Agave</i> spp. (11% of land area covered by invasive species)."
	Verloove F. (2017). <i>Yucca gloriosa</i> . On: Manual of the Alien Plants of Belgium. Botanic Garden of Meise, Belgium. alienplantsbelgium.be	"In few years' time and as a result of strong clonal growth <i>Yucca gloriosa</i> has locally built rather impressive populations."
	Brunel, S., Brundu, G., & Fried, G. (2013). Eradication and control of invasive alien plants in the Mediterranean Basin: towards better coordination to enhance existing initiatives. <i>EPPO Bulletin</i> , 43(2), 290-308	[Locally abundant] "Table 2 Invasive alien species recorded to be subject to control actions in Mediterranean countries ... <i>Yucca gloriosa</i> - Italy - Ente Parco Regionale Migliarino San Rossore Massaciuccoli. The species is locally abundant in back dunes. Mechanical and chemical controls are being undertaken followed by monitoring."

501	Aquatic	n
	Source(s)	Notes

Qsn #	Question	Answer
	Flora of North America Editorial Committee. 2002. Flora of North America: North of Mexico, Volume 26. Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, Oxford, UK	[Terrestrial] "Yucca gloriosa var. gloriosa ... Plants caulescent, branching near summits, to 5 m ... Coastal dunes; 0 m" ... "Yucca gloriosa var. recurvifolia ... Plants arborescent, simple or branching, to 2 m ... Sandy soils of Gulf coast plains; 0--100 m"

502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Nov 2017]	Family: Asparagaceae Subfamily: Agavoideae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 8 Nov 2017]	Family: Asparagaceae Subfamily: Agavoideae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Eggle, U. (ed.). 2001. Illustrated Handbook of Succulent Plants: Monocotyledons. Springer-Verlag, Berlin, Heidelberg, New York	"Plants forming colonies of rosettes, caulescent, arborescent, simple or more often branching. Stems erect, to 5 m. Leaf blade erect or recurving, green or blue-green, lanceolate or sword shaped, flattened, concave distally, thin, 40–100 × 3.5–6 cm, rigid or flexible, glaucous at least when young, margins entire or roughly and minutely denticulate, often becoming filiferous with straight fibers, yellow or brown, opaque."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 9 Nov 2017]	"Native: Northern America Southeastern U.S.A.: United States - Alabama, - Florida, - Georgia, - Louisiana, - Mississippi, - North Carolina, - South Carolina" [No evidence. Widespread distribution]

602	Produces viable seed	y
	Source(s)	Notes
	Flora of North America Editorial Committee. 2002. Flora of North America: North of Mexico, Volume 26. Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, Oxford, UK	"Fruits erect or pendent, baccate, with core, indehiscent, 6-winged or 6-ribbed, elongate, 2.5–8 cm, leathery. Seeds black, lustrous, ovate, thin, 5–8 mm diam."

Qsn #	Question	Answer
	Gilman, E. F. (1999). <i>Yucca gloriosa</i> Spanish Dagger, Mound Lily Yucca. Fact Sheet FPS-616. University of Florida IFAS Extension, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 9 Nov 2017]	"Propagation is by division of the suckers or by cuttings of any size at any season. Occasionally plants are grown from seed."
	Plants for a Future. 2017. <i>Yucca gloriosa</i> . http://www.pfaf.org . [Accessed 9 Nov 2017]	"Seed - sow spring in a greenhouse. Pre-soaking the seed for 24 hours in warm water may reduce the germination time. It usually germinates within 1 - 12 months if kept at a temperature of 20°C. Prick out the seedlings into individual pots when they are large enough to handle and grow them on in the greenhouse or cold frame for at least their first two winters. Plant them out into their permanent positions in early summer and consider giving them some winter protection for at least their first winter outdoors - a simple pane of glass is usually sufficient[K]. Seed is not produced in Britain unless the flowers are hand pollinated."
	Lorence, D.H. 1999. Specimen Details for <i>Yucca gloriosa</i> L. ID Number 147121. Collection Number s.n. - 21 Aug 1930. Bishop Museum, Honolulu, HI. http://nsdb.bishopmuseum.org/ . [Accessed 9 Nov 2017]	"USA - Hawaii - Oahu - Honolulu: Kapalama Heights; site of new Kamehameha School" ... "Fruiting spike with seeds."

603	Hybridizes naturally	
	Source(s)	Notes
	Rentsch, J. D. (2013). Ecology and Evolution of Southeastern United States <i>Yucca</i> Species. PhD Dissertation. University of Georgia, Athens, GA	"Both species (along with <i>Y. filamentosa</i>) also share the same moth pollinator, <i>Tegenticula yuccasella</i> . While all three species are known to flower simultaneously at some low frequency, their flowering times are largely non-overlapping, with <i>Y. filamentosa</i> flowering the earliest and <i>Y. gloriosa</i> flowering the latest on average (27). <i>Yucca gloriosa</i> , therefore, joins a small list of homoploid hybrid species that has persisted in sympatry with one or both of its parental taxa."
	Rentsch, J. D., & Leebens-Mack, J. (2012). Homoploid hybrid origin of <i>Yucca gloriosa</i> : intersectional hybrid speciation in <i>Yucca</i> (Agavoideae, Asparagaceae). <i>Ecology and Evolution</i> , 2(9), 2213-2222	[Hybrid origin. Reproductively isolated from parents. Unknown if capable of hybridizing with other <i>Yucca</i> species] "The data presented here provide strong support for the hybrid origin of <i>Y. gloriosa</i> as the result of pollen dispersal from <i>Y. filamentosa</i> to the maternal parent, <i>Y. aloifolia</i> . <i>Yucca gloriosa</i> appears to be a later-generation hybrid that is reproductively isolated from its parents, likely due to differences in flowering phenology. Although more data are needed to assess whether <i>Y. gloriosa</i> is the product of one or more hybridization events, the data provided highlight the significance of this species as being the first genetically characterized homoploid hybrid yucca species between the monophyletic sections of <i>Yucca</i> and <i>Chaenocarpa</i> ."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Rentsch, J. D. (2013). Ecology and Evolution of Southeastern United States <i>Yucca</i> Species. PhD Dissertation. University of Georgia, Athens, GA	"Interestingly, although <i>Yucca</i> species are self-compatible, a mating systems analysis in <i>Y. filamentosa</i> has shown lower rates of self-pollination than expected by moth behavior – suggesting <i>Yucca</i> species may selectively abscise fruits containing predominantly self-fertilized ovules(116)."

Qsn #	Question	Answer
605	Requires specialist pollinators	y
	Source(s)	Notes
	Plants for a Future. 2017. <i>Yucca gloriosa</i> . http://www.pfaf.org . [Accessed 9 Nov 2017]	"In the plants native environment, its flowers can only be pollinated by a certain species of moth. This moth cannot live in Britain and, if fruit and seed is required, hand pollination is necessary. This can be quite easily and successfully done using something like a small paint brush."
	Floridata. 2017. <i>Yucca gloriosa</i> . https://floridata.com/Plants/Agavaceae/Yucca%20gloriosa/114 . [Accessed 12 Nov 2017]	"The yuccas are pollinated only by specific species of moths (yucca moths), and if none of these moths is around when your yucca is blooming you will have to hand pollinate the flowers if you want viable seeds."
	Rentsch, J. D. (2013). Ecology and Evolution of Southeastern United States <i>Yucca</i> Species. PhD Dissertation. University of Georgia, Athens, GA	" <i>Yucca</i> species are perhaps best known for the obligate pollination mutualism they share with moths in the genera <i>Tegeticula</i> and <i>Parategeticula</i> . Such interactions are thought to be highly specialized, restricting gene flow between species and even make evolutionary reversions to generalist life history characterizes impossible." ... " <i>Yucca</i> species share a long-studied mutualistic relationship with pollinating yucca moths within the genera <i>Tegeticula</i> and <i>Parategeticula</i> ..." ... "This mutualism is widely considered obligate, as yucca moths are thought to be the sole pollinators of yucca species and also require the yucca plant as a mating arena and larval food source."

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	Galasso, G. et al. (2017). Notulae to the Italian alien vascular flora: 3. <i>Italian Botanist</i> 3: 49-71	"Based on our field observations, the species shows a high clonal propagation capacity, determining modifications in vegetation and ecosystem dynamics."
	Rentsch, J. D. (2013). Ecology and Evolution of Southeastern United States <i>Yucca</i> Species. PhD Dissertation. University of Georgia, Athens, GA	"Like <i>Y. aloifolia</i> , <i>Y. gloriosa</i> is able to propagate clonally through rhizomes and severed leaf tissue. This may contribute to the persistence of these species in disturbance-prone dune habitats."

607	Minimum generative time (years)	
	Source(s)	Notes
	Horticulture Unlimited, Inc. 2017. <i>Yucca gloriosa</i> . https://www.horticultureunlimited.com/plant-guide/spanish-dagger/ . [Accessed 15 Nov 2017]	"Growth Rate: Fast" [Years to maturity unknown]
	Gilman, E. F. (1999). <i>Yucca gloriosa</i> Spanish Dagger, Mound Lily <i>Yucca</i> . Fact Sheet FPS-616. University of Florida IFAS Extension, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 15 Nov 2017]	"Growth rate: slow" [Years to maturity unknown]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y
	Source(s)	Notes

Qsn #	Question	Answer
	Galanos, C. J. (2015). The alien flora of terrestrial and marine ecosystems of Rodos island (SE Aegean), Greece. <i>Willdenowia</i> , 45(2), 261-278	"Spontaneous plants were observed to be established very well, mainly in streams, coastal habitats, along forest roads and abandoned sites."
	Verloove F. (2017). <i>Yucca gloriosa</i> . On: Manual of the Alien Plants of Belgium. Botanic Garden of Meise, Belgium. alienplantsbelgium.be	" <i>Yucca gloriosa</i> L. (incl. <i>Y. recurvifolia</i> Salisb.) (N-Am.)– A frequent garden plant, increasingly seen as a garden throw-out in ruderal areas or on dumps." [Spread through discarded garden waste]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"Native to the eastern U.S. from Florida to North Carolina, this shrubby <i>Yucca</i> is occasionally cultivated in Hawaii, more frequently at middle elevations on Maui and the Big Island than on Oahu. It tolerates salt exposure and could perhaps be used more in coastal plantings, as it already is on Kauai,"
	Eggle, U. (ed.). 2001. <i>Illustrated Handbook of Succulent Plants: Monocotyledons</i> . Springer-Verlag, Berlin, Heidelberg, New York	"Probably the most widely grown <i>Yucca</i> species with many cultivars, hybrids and selections ..."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Flora of North America Editorial Committee. 2002. <i>Flora of North America: North of Mexico, Volume 26</i> . Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, Oxford, UK	"Fruits erect or pendent, baccate, with core, indehiscent, 6-winged or 6-ribbed, elongate, 2.5–8 cm, leathery. Seeds black, lustrous, ovate, thin, 5–8 mm diam." [Fruit & seeds relatively large & infrequently produced in cultivation]
	Gilman, E. F. (1999). <i>Yucca gloriosa</i> Spanish Dagger, Mound Lily <i>Yucca</i> . Fact Sheet FPS-616. University of Florida IFAS Extension, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 15 Nov 2017]	"Propagation is by division of the suckers or by cuttings of any size at any season. Occasionally plants are grown from seed." [No evidence of produce contamination. Unlikely given rarity of seed production in cultivation]
	Plants for a Future. 2017. <i>Yucca gloriosa</i> . http://www.pfaf.org . [Accessed 15 Nov 2017]	"Seed is not produced in Britain unless the flowers are hand pollinated."

704	Propagules adapted to wind dispersal	
	Source(s)	Notes
	Flora of North America Editorial Committee. 2002. <i>Flora of North America: North of Mexico, Volume 26</i> . Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, Oxford, UK	"Fruits erect or pendent, baccate, with core, indehiscent, 6-winged or 6-ribbed, elongate, 2.5–8 cm, leathery. Seeds black, lustrous, ovate, thin, 5–8 mm diam." [Possible that seeds might be dispersed for short distances by wind if released from somewhat fleshy fruit. See Lenz (2001) for discussion about dispersal in a related species]
	Rentsch, J. D. (2013). <i>Ecology and Evolution of Southeastern United States Yucca Species</i> . PhD Dissertation. University of Georgia, Athens, GA	"The somewhat spongy fruit morphology of <i>Yucca gloriosa</i> deviates from the typical fleshy vs. capsular fruit seen throughout the rest of the genus. While this fruit type could have arisen through mutation of one of the traditional fruit types, it also may represent an intermediate morphological character that arose through hybridization between clades of the genus."

Qsn #	Question	Answer
	Lenz, L. W. (2001). Seed Dispersal in <i>Yucca brevifolia</i> (Agavaceae)-Present and Past, With Consideration of the Future of the Species. <i>Aliso</i> , 20(2), 61-74	[Related species with limited wind dispersal] "From the viewpoint of <i>Y. brevifolia</i> , how effective is wind as an agency of seed dissemination ? Seeds of the Joshua tree lack a marginal wing, are thicker and heavier than those of wind disseminated species (sect. <i>Chaenocarpa</i>) and are not adapted for long distance dispersal by air currents. The distance that diaspores of <i>Y. brevifolia</i> may be carried by wind is unknown but present evidence from field observations suggests that it is limited."

705	Propagules water dispersed	
	Source(s)	Notes
	Galanos, C. J. (2015). The alien flora of terrestrial and marine ecosystems of Rodos island (SE Aegean), Greece. <i>Willdenowia</i> , 45(2), 261-278	"Spontaneous plants were observed to be established very well, mainly in streams, coastal habitats, along forest roads and abandoned sites."
	Rentsch, J. D., & Leebens-Mack, J. (2012). Homoploid hybrid origin of <i>Yucca gloriosa</i> : intersectional hybrid speciation in <i>Yucca</i> (Agavoideae, Asparagaceae). <i>Ecology and Evolution</i> , 2(9), 2213-2222	" <i>Y. gloriosa</i> displays a fruit type that appears to be intermediate to the capsular and fleshy fruits of yuccas in sections <i>Chaenocarpa</i> and <i>Yucca</i> , respectively."
	Rentsch, J. D. (2013). Ecology and Evolution of Southeastern United States <i>Yucca</i> Species. PhD Dissertation. University of Georgia, Athens, GA	[Buoyancy of spongy fruit unknown] "The somewhat spongy fruit morphology of <i>Yucca gloriosa</i> deviates from the typical fleshy vs. capsular fruit seen throughout the rest of the genus."

706	Propagules bird dispersed	n
	Source(s)	Notes
	Rentsch, J. D. (2013). Ecology and Evolution of Southeastern United States <i>Yucca</i> Species. PhD Dissertation. University of Georgia, Athens, GA	[No evidence of bird dispersal in this or related species] "The somewhat spongy fruit morphology of <i>Yucca gloriosa</i> deviates from the typical fleshy vs. capsular fruit seen throughout the rest of the genus. While this fruit type could have arisen through mutation of one of the traditional fruit types, it also may represent an intermediate morphological character that arose through hybridization between clades of the genus."
	Lenz, L. W. (2001). Seed Dispersal in <i>Yucca brevifolia</i> (Agavaceae)-Present and Past, With Consideration of the Future of the Species. <i>Aliso</i> , 20(2), 61-74	[Related species, with similar fruit, is not bird dispersed] "Earlier descriptions of the fruit of <i>Yucca brevifolia</i> are reviewed. It is here shown that the fruit is a fleshy, sugar-rich berry that later becomes a hard, dry, spongy body. At no time are seeds released from the fruit without the exertion of an outside force." ... "There is no evidence that birds disperse seeds of <i>Y. brevifolia</i> ."

707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes

Qsn #	Question	Answer
	Borchert, M. (2016). Rodent Removal of Fallen Joshua Tree (<i>Yucca brevifolia</i>) Fruits. Bulletin, Southern California Academy of Sciences, 115(3), 146-155	[Unknown if <i>Yucca gloriosa</i> could also be dispersed by seed caching rodents] "Joshua trees (<i>Yucca brevifolia</i>) produce large, indehiscent fruits that contain numerous large seeds. Seed dispersal in this species depends on rodents to dismantle fruits and extract the seeds which they disperse tens of meters from the source. Using camera trapping and fruits tied to bobbins, I show that white-tailed antelope squirrels (<i>Ammospermophilus leucurus</i>) and kangaroo rats (<i>Dipodomys</i> spp.) moved intact, fallen fruits 6 to 7 m from trees before opening them. Pocket mice (<i>Chaetodipus fallax</i> and <i>Perognathus longimembris</i>) and pinyon mice (<i>Peromyscus trueii</i>) dismantled fruits and harvested loose seeds but did not appear to move them although they readily harvested loose seeds. Mobilizing fruits may be an important, overlooked step in the seed dispersal process, especially if the fruits are indehiscent. Fruit carrying behavior of rodents described in this study adds to the dispersal distance of Joshua tree seeds."

708	Propagules survive passage through the gut	
	Source(s)	Notes
	Flora of North America Editorial Committee. 2002. Flora of North America: North of Mexico, Volume 26. Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, Oxford, UK	"Fruits erect or pendent, baccate, with core, indehiscent, 6-winged or 6-ribbed, elongate, 2.5–8 cm, leathery. Seeds black, lustrous, ovate, thin, 5–8 mm diam." [Unknown if fruits or seeds are consumed or survive gut passage]

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Plants for a Future. 2017. <i>Yucca gloriosa</i> . http://www.pfaf.org . [Accessed 9 Nov 2017]	"Seed is not produced in Britain unless the flowers are hand pollinated." [Unknown if a suitable pollinator is present in the Hawaiian Islands]

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. (2017) Seed Information Database (SID). Version 7.1. Available from: http://data.kew.org/sid/ . [Accessed 15 Nov 2017]	Unknown. Several <i>Yucca</i> species have orthodox seeds

803	Well controlled by herbicides	
	Source(s)	Notes

Qsn #	Question	Answer
	Hardy Tropicals UK. 2017. Forum List < Hardy Tropicals < HTUK Community Forum (public). Yucca Invasive Root System. http://www.hardytropicals.co.uk/ . [Accessed 9 Nov 2017]	[Anecdotal information suggests some herbicides may not be effective] "Re: Yucca Invasive Root System Postby DaveP » Sat Aug 14, 2010 3:53 am I had Yucca gloriosa with a 1.2m clear trunk that was planted a bit too close to the path and was stabbing visitors all too regularly. It was cut down and as much root as possibly excavated, but big fat shoots have pushed up through the paving and generally becoming a major nuisance. Its quite clear that sections of rhizome were left in the soil and they seem very difficult to kill. Brushwood killer didn't make any difference whatsoever and Deep Root only weakens the growth temporarily. It looks as though a large area of paving will have to be lifted and the whole area dug over more thoroughly."
	Brunel, S., Brundu, G., & Fried, G. (2013). Eradication and control of invasive alien plants in the Mediterranean Basin: towards better coordination to enhance existing initiatives. EPPO Bulletin, 43(2), 290-308	[Efficacy of chemical control unspecified] "Table 2 Invasive alien species recorded to be subject to control actions in Mediterranean countries ... Yucca gloriosa - Italy - Ente Parco Regionale Migliarino San Rossore Massaciuccoli. The species is locally abundant in back dunes. Mechanical and chemical controls are being undertaken followed by monitoring."
	Young, S.L., Mues, N.L., & Anderson, D. L. 2011. Managing Soapweed Yucca. G2086. University of Nebraska–Lincoln Extension, Lincoln, NE. ianrpubs.unl.edu/	[Possibly Yes. Herbicides effective on other Yucca species] "Effective control of yucca with herbicides is highly dependent on timing and placement. A directed spray using Remedy® and diesel fuel or vegetable oil is effective for controlling yucca. By mixing Remedy (15 percent) with diesel fuel or vegetable oil (85 percent), an application to the center of the whorl with a single spray nozzle (5500 X1) will allow the herbicide to be absorbed directly into the meristematic tissue for complete uptake. It is important to add the herbicide to the spray tank first and then add enough oil to get the total volume desired. In addition, the duration of application to the whorl must be for at least two seconds. Use a timer or slowly count (e.g., "21, 22") to ensure a two-second application." ... "Broadcast applications of herbicides, such as Roundup Ultra®, Reward®, and Roundup Ultra or Reward® plus Ally® had varying rates of control at eight weeks after treatment. Control of yucca was 48 percent with 6 quarts of Roundup Ultra®, which was greater than for Reward® (Table II). Adding Ally® improved control; however, it was still less than 70 percent regardless of timing."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Hardy Tropicals UK. 2017. Forum List < Hardy Tropicals < HTUK Community Forum (public). Yucca Invasive Root System. http://www.hardytropicals.co.uk/ . [Accessed 9 Nov 2017]	[Anecdotal information suggests plants are able to resprout after cutting without complete removal of roots] "Re: Yucca Invasive Root System. Postby DaveP » Sat Aug 14, 2010 3:53 am I had Yucca gloriosa with a 1.2m clear trunk that was planted a bit too close to the path and was stabbing visitors all too regularly. It was cut down and as much root as possibly excavated, but big fat shoots have pushed up through the paving and generally becoming a major nuisance. Its quite clear that sections of rhizome were left in the soil and they seem very difficult to kill. Brushwood killer didn't make any difference whatsoever and Deep Root only weakens the growth temporarily. It looks as though a large area of paving will have to be lifted and the whole area dug over more thoroughly."

Qsn #	Question	Answer
	Gilman, E. F. (1999). <i>Yucca gloriosa</i> Spanish Dagger, Mound Lily Yucca. Fact Sheet FPS-616. University of Florida IFAS Extension, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 9 Nov 2017]	"Roots: sprouts from roots or lower trunk"
	Tilley, N. 2017. Getting Rid Of Yucca Plants– How To Remove A Yucca Plant. https://www.gardeningknowhow.com . [Accessed 12 Nov 2017]	"Unbeknownst to many people, getting rid of yucca plants is not a one-time deal. In fact, simply digging them up or cutting them down may not always be enough. Yucca plants have an extensive root system and will continue to grow long after the plant has been removed. For instance, where one yucca plant is dug up, numerous yucca sprouts may appear again and again."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"Native to the eastern U.S. from Florida to North Carolina, this shrubby <i>Yucca</i> is occasionally cultivated in Hawaii, more frequently at middle elevations on Maui and the Big Island than on Oahu. It tolerates salt exposure and could perhaps be used more in coastal plantings, as it already is on Kauai," [Unknown. No mention of significant pests or pathogens]

Summary of Risk Traits:

High Risk / Undesirable Traits

- Able to grow in 6 hardiness zones, demonstrating environmental versatility
- Grows in tropical climates
- Naturalized in several European countries (no evidence in Hawaiian Islands to date)
- Controlled as a weed in Europe (potential environmental weed)
- Other *Yucca* species are invasive
- Spine-tipped leaves
- Unpalatable to deer & potentially other grazing animals
- Potentially toxic and irritant to animals & people
- Tolerates many soil types
- Reproduces by seeds and vegetatively by clonal spread through rhizomes
- Self-compatible
- Spread vegetatively through garden waste
- Seeds dispersed intentionally by people
- Able to resprout after cutting

Low Risk Traits

- Ornamental
- Requires specialized pollination (obligate pollination mutualism with moths in the genera *Tegeticula* and *Parategeticula*)
- Fruit & seed production may be limited in cultivation
- Fruit & seed dispersal may be limited