

<b>Taxon:</b> <i>Sisyrinchium rosulatum</i> E. P. Bicknell	<b>Family:</b> Iridaceae
<b>Common Name(s):</b> annual blue eyed-grass	<b>Synonym(s):</b> <i>Sisyrinchium brownei</i> Small <i>Sisyrinchium exile</i> E.P.Bicknell

<b>Assessor:</b> Assessor	<b>Status:</b> Assessor Approved	<b>End Date:</b> 8 Apr 2021
<b>WRA Score:</b> 10.0	<b>Designation:</b> H(HPWRA)	<b>Rating:</b> High Risk

**Keywords:** Annual, Herb, Naturalized, Lawn Weed, Roadside Weed

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)	High
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	n
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	n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	y
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
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	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
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	y=1, n=0	n
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	n
606	Reproduction by vegetative fragmentation		
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
702	Propagules dispersed intentionally by people	y=1, n=-1	n
703	Propagules likely to disperse as a produce contaminant		
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed		
706	Propagules bird dispersed		
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m <sup>2</sup> )		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
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
	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	No evidence

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2021). 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"	High
	Source(s)	Notes
	Acevedo-Rodríguez, P. & Strong, M.T. 2005. Monocotyledons and Gymnosperms of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium 52: 1-415	[Found at higher elevations of tropical islands] "General distribution: Southeastern United States, Hispaniola, and Puerto Rico. Distribution in Puerto Rico: Confined to higher parts of the Cordillera Central at elevations of 950-1250 m. Recorded from Jayuya, Ponce, and Villalba."
	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	[Marginally subtropical] "Roadsides, old fields, and other disturbed areas, stream banks, wet areas bordering woods; 0--80 m; Ala., Ark., Fla., Ga., La., Miss., N.C., S.C., Tex."

202	Quality of climate match data	High
	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	

Qsn #	Question	Answer
203	<b>Broad climate suitability (environmental versatility)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Backyard Gardener. (2021). <i>Sisyrinchium rosulatum</i> . <a href="http://www.backyardgardener.com">http://www.backyardgardener.com</a> . [Accessed 8 Apr 2021]	"USDA Hardiness Zone: 7 to 10 "
	Tropicos.org. (2021). Missouri Botanical Garden. <a href="http://www.tropicos.org/">http://www.tropicos.org/</a> . [Accessed 8 Apr 2021]	Collected at latitudes from 20°26'00"N to 31°53'00"N

204	<b>Native or naturalized in regions with tropical or subtropical climates</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Sunil, C. N., & Pradeep, A. K. (2011). <i>Sisyrinchium</i> (Iridaceae): A new genus record for India. <i>Rheedea</i> , 21(2): 170-172	" <i>S. rosulatum</i> is known from the coastal areas of the southern United States and Central America. It is also known to be naturalized in Madagascar, and now reported from the Nilgiris in Peninsular India. It is found growing in hill slopes and meadows dominated by sedges and grasses."

205	<b>Does the species have a history of repeated introductions outside its natural range?</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2021). Personal Communication	Introduced & naturalized in Hawaii, India, Madagascar, Japan & elsewhere (see 3.01)

301	<b>Naturalized beyond native range</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"In the Hawaiian Islands, naturalized on Hawai'i."
	Sunil, C. N., & Pradeep, A. K. (2011). <i>Sisyrinchium</i> (Iridaceae): A new genus record for India. <i>Rheedea</i> , 21(2): 170-172	" <i>S. rosulatum</i> is known from the coastal areas of the southern United States and Central America. It is also known to be naturalized in Madagascar, and now reported from Nilgiris in Peninsular India. It is found growing in hill slopes and meadows dominated by sedges and grasses."
	Yamaguchi, H., & Hirai, S. (1987). Natural hybridization and flower color inheritance in <i>Sisyrinchium rosulatum</i> Bickn. <i>Weed Research</i> (Japan).32(1): 38-45	" <i>Sisyrinchium rosulatum</i> BICKN., an alien species introduced from North America, is a weed in roadsides, lawns and open places in Japan, showing two conspicuous flower-colors, white and purple (lavender rose). <i>S. rosulatum</i> naturalized in the Far East in 1880's and the species has long been misunderstood, being attributed instead to <i>S. iridifolium</i> H.B.K., <i>S. atlanticum</i> BICKN. or <i>S. angustifolium</i> MILL...."
	Nicolella, G., & Ardenghi, N. M. (2013). <i>Sisyrinchium rosulatum</i> EP Bicknell (Iridaceae), alloctona nuova per l'Italia. <i>Acta Plantarum Notes</i> , 2, 102-106	" <i>Sisyrinchium rosulatum</i> E.P. Bicknell, a neophyte from the south-eastern United States, is recorded for the first time in Italy. The plant was discovered in 2012 in a flowerbed in Rome. Its possible means of introduction and its invasive status are discussed, in connection with similar recordings of the species in other European countries."

Qsn #	Question	Answer
	Gyeltshen, P., Borah, D., & Das, A. P. (2019). <i>Sisyrinchium rosulatum</i> EP Bicknell (Iridaceae): new record of a naturalized species in Bhutan. <i>Pleione</i> 13(1): 188-191	" <i>Sisyrinchium rosulatum</i> E.P.Bicknell (Iridaceae, Iridoideae, Sisyrinchieae), a native of South America, is recorded and described here as a newly naturalized species for the flora of Bhutan."
	Verloove, F., & Gullón, E. S. (2012). New records of interesting vascular plants (mainly xenophytes) in the Iberian Peninsula. II. <i>Flora Mediterranea</i> , 22: 5-24	" <i>Sisyrinchium rosulatum</i> is a native of the southern United States but occurs as a weed outside its original distribution range. In Europe it appears to be very rare and it is probably limited to southwestern France (Parent 1977, 1980). In Huelva it was discovered as a fully naturalised lawn weed in July 2010."

302	Garden/amenity/disturbance weed	y
	Source(s)	Notes
	Royal Botanic Gardens Victoria. (2021). VicFlora Flora of Victoria - <i>Sisyrinchium rosulatum</i> . <a href="https://vicflora.rbg.vic.gov.au">https://vicflora.rbg.vic.gov.au</a> . [Accessed 8 Apr 2021]	"Also naturalised ?WA, Qld, NSW, LHI, NI, ACT. Native to South America. A locally common weed in southern Victoria, occurring in nature-strips, and pasture, or sometimes native grasslands in winter-wet sites."
	McCarty, L.B., Everest, J.W., Hall, D.W., Murphy, T.R. & Yelverton, F. (2001). <i>Color Atlas of Turfgrass Weeds</i> . Sleeping Bear Press, Chelsea, MI	"Found on moist sites in lawns, roadsides, golf courses, and pastures."
	Zhenghao Xu & Le Chang. 2017. <i>Identification and Control of Common Weeds: Volume 3</i> . Zhejiang University Press, Hangzhou and Springer Nature Singapore	"Harmfulness <i>Sisyrinchium rosulatum</i> sometimes may be a weed in lawn."
	Yamaguchi, H., & Hirai, S. (1987). Natural hybridization and flower color inheritance in <i>Sisyrinchium rosulatum</i> Bickn. <i>Weed Research (Japan)</i> .32(1): 38-45	" <i>Sisyrinchium rosulatum</i> BICKN., an alien species introduced from North America, is a weed in roadsides, lawns and open places in Japan..."
	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	" <i>Sisyrinchium rosulatum</i> is apparently weedy throughout much of its range."
	Correll, D.S. & Correll, H.B. 1975. <i>Aquatic and Wetland Plants of Southwestern United States, Volume 1</i> . Stanford University Press, Stanford, CA	"Weedy along roadsides and old fields, sometimes in bogs or wet meadows, from Gulf Coast to s.e. Tex."

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

304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	y
	Source(s)	Notes

Qsn #	Question	Answer
	Zich F.A., Hyland B.P.M., Whiffin T., Kerrigan R.A. (2020). <i>Sisyrinchium micranthum</i> . Australian Tropical Rainforest Plants, Edition 8. <a href="https://apps.lucidcentral.org/rainforest/">https://apps.lucidcentral.org/rainforest/</a> . [Accessed 8 Apr 2021]	"A weed of disturbed places in high rainfall areas (Bentham 1873, Green 1994). Poisonous to stock, causing violent scouring (Webb 1948)."
	Kenton, A. Y., Rudall, P. J., & Johnson, A. R. (1986). Genome size variation in <i>Sisyrinchium</i> L. (Iridaceae) and its relationship to phenotype and habitat. <i>Botanical Gazette</i> , 147(3): 342-354	" <i>Sisyrinchium</i> , a complex genus in the Iridaceae, is restricted almost entirely to the Americas. Be- cause of the weedy and self-fertile nature of many of its species, its taxonomy has been poorly re- solved (GOLDBLATT 1982)."
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	The following species have at least one reference listing them as weeds of some kind: <i>Sisyrinchium albidum</i> , <i>Sisyrinchium atlanticum</i> , <i>Sisyrinchium bermudiana</i> , <i>Sisyrinchium californicum</i> , <i>Sisyrinchium cernuum</i> , <i>Sisyrinchium chilense</i> , <i>Sisyrinchium convolutum</i> , <i>Sisyrinchium iridifolium</i> , <i>Sisyrinchium laxum</i> , <i>Sisyrinchium micranthum</i> , <i>Sisyrinchium montanum</i> , <i>Sisyrinchium platense</i> , <i>Sisyrinchium scabrum</i> , <i>Sisyrinchium toluense</i>

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Sunil, C. N., & Pradeep, A. K. (2011). <i>Sisyrinchium</i> (Iridaceae): A new genus record for India. <i>Rheedea</i> , 21(2): 170-172	"Caespitose annuals, up to 30 cm high, dark green to light green when dry. Rhizome cylindrical, c. 4 × 0.4 cm, woody, tapering towards base, often producing runner-like branches to 45 cm long, black; roots fibrous, numerous, spreading, light brown to dark. Stems erect to ascending, simple or 2 or 3-branched, compressed and narrowly winged. Leaves distichous, generally shorter than the stems; the blades falcate-ensiform, 5 – 18 × 0.2 – 2.5 cm, dark green, scabrous at margins, acute at apex, 5 or 6-nerved; cauline leaves shorter than the basal."

402	Allelopathic	n
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

403	Parasitic	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). <i>Manual of the flowering plants of Hawaii</i> . Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Iridaceae. No evidence] "Annual or short-lived perennial herbs, 8-27 cm tall; flowering stems narrowly winged, with basal leaves and 2-3 internodes bearing cauline leaves, roots fibrous."

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Royal Botanic Gardens Victoria. (2021). <i>VicFlora Flora of Victoria - Sisyrinchium rosulatum</i> . <a href="https://vicflora.rbg.vic.gov.au">https://vicflora.rbg.vic.gov.au</a> . [Accessed 8 Apr 2021]	"Although seldom grazed, it is reputed to be toxic to stock."

Qsn #	Question	Answer
	Ishikawa, H. (2011). Seed contents of sika deer ( <i>Cervus nippon</i> ) dung and the fate of seeds in a temperate short grassland in an urban park in Japan. <i>Journal of Ecology and Field Biology</i> 34(3): 295-305	[1 intact seed of <i>Sisyrinchium rosulatum</i> collected.. Presumably consumed by deer to ingest seed, either intentionally or accidentally while feeding on other plants] "Table 1. Herbaceous plant species growing in the plant community at the study site from May 2000 to December 2003, and the maximum number of seeds per sika deer fecal pellet and the total number of seeds contained in the pellets (530 pellets from May to November 1999 and from April to November in 2000 and 2001) collected in the Tobihino area of Nara Park"
	Moore, L. & Friedley, S. (2004). <i>Sisyrinchium pallidum</i> Cholewa & Henderson (pale blue-eyed grass): A Technical Conservation Assessment. [Online]. USDA Forest Service, Rocky Mountain Region. <a href="http://www.fs.fed.us">http://www.fs.fed.us</a> . [Accessed ]	[Unknown for <i>S. rosulatum</i> . Other species may be palatable] "This species appears to be palatable to livestock or native mammals to some degree, as several observations have been made of closely cropped plants." ... "Palatability of this species has been suggested but not verified."

405	Toxic to animals	
	Source(s)	Notes
	Royal Botanic Gardens Victoria. (2021). VicFlora Flora of Victoria - <i>Sisyrinchium rosulatum</i> . <a href="https://vicflora.rbg.vic.gov.au">https://vicflora.rbg.vic.gov.au</a> . [Accessed 8 Apr 2021]	"Although seldom grazed, it is reputed to be toxic to stock."
	PlantNET. (2021). New South Wales Flora Online - <i>Sisyrinchium rosulatum</i> E.P.Bicknell. National Herbarium of NSW, Royal Botanic Garden, Sydney. <a href="http://plantnet.rbg Syd.nsw.gov.au">http://plantnet.rbg Syd.nsw.gov.au</a> . [Accessed 8 Apr 2021]	"Reported to be toxic to stock."

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Global Species. (2014). <i>Sisyrinchium rosulatum</i> (annual blue-eyed grass). <a href="http://www.globalspecies.org/ntaxa/2217786">http://www.globalspecies.org/ntaxa/2217786</a> . [Accessed 20 Aug 2014]	"Allergen Potential [1] Low"
	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	No evidence
	Wagstaff, D.J. (2008). <i>International poisonous plants checklist: an evidence-based reference</i> . CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	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	[No evidence, and unlikely given habitat] "Roadsides, old fields, and other disturbed areas, stream banks, wet areas bordering woods"

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Backyard Gardener. (2021). <i>Sisyrinchium rosulatum</i> . <a href="http://www.backyardgardener.com">http://www.backyardgardener.com</a> . [Accessed 8 Apr 2021]	"Light Range: Any "
	Zhenghao Xu & Le Chang. 2017. Identification and Control of Common Weeds: Volume 3. Zhejiang University Press, Hangzhou and Springer Nature Singapore	" <i>Sisyrinchium rosulatum</i> prefers wet circumstances and fits for from full to partial sunny conditions."
	SparkleberrySprings.com. (2006). May 2006: Featured Plants - Blue-eyed-grasses. <a href="http://sparkleberrysprings.com/frontpages/May06_Sisyrinchium.htm">http://sparkleberrysprings.com/frontpages/May06_Sisyrinchium.htm</a> . [Accessed 8 Apr 2021]	"They do well in shade to part sun, most can grow in wetlands, and are interesting virtually all year. "

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Louisiana Home Lawn Series. (2021). Annual blue-eyed grass. <a href="https://www.lsuagcenter.com">https://www.lsuagcenter.com</a> . [Accessed 8 Apr 2021]	"It can tolerate most soil types but is often observed growing in moist areas."
	Backyard Gardener. (2021). <i>Sisyrinchium rosulatum</i> . <a href="http://www.backyardgardener.com">http://www.backyardgardener.com</a> . [Accessed 8 Apr 2021]	"Soil Range: Any"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Annual or short-lived perennial herbs, 8-27 cm tall; flowering stems narrowly winged, with basal leaves and 2-3 internodes bearing cauline leaves, roots fibrous. "



Qsn #	Question	Answer
412	<b>Forms dense thickets</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Zhenghao Xu & Le Chang. 2017. Identification and Control of Common Weeds: Volume 3. Zhejiang University Press, Hangzhou and Springer Nature Singapore	"Harmfulness <i>Sisyrinchium rosulatum</i> sometimes may be a weed in lawn." [No evidence]
	McCarty, L.B., Everest, J.W., Hall, D.W., Murphy, T.R. & Yelverton, F. (2001). Color Atlas of Turfgrass Weeds. Sleeping Bear Press, Chelsea, MI	[Not reported to form dense cover] "Found on moist sites in lawns, roadsides, golf courses, and pastures."
	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	[Not reported to form dense stands or to otherwise dominate the vegetation of an area] "Roadsides, old fields, and other disturbed areas, stream banks, wet areas bordering woods"

501	<b>Aquatic</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	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] "Roadsides, old fields, and other disturbed areas, stream banks, wet areas bordering woods"

502	<b>Grass</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	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	[Iridaceae] "Herbs, annual or short-lived perennial, cespitose, yellowish green to medium or dark olive green when dry, to 3.6 dm, not glaucous."

503	<b>Nitrogen fixing woody plant</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	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	[Iridaceae] "Herbs, annual or short-lived perennial..."

504	<b>Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Annual or short-lived perennial herbs, 8-27 cm tall; flowering stems narrowly winged, with basal leaves and 2-3 internodes bearing cauline leaves, roots fibrous."

601	<b>Evidence of substantial reproductive failure in native habitat</b>	<b>n</b>
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	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	[No evidence] "Sisyrinchium rosulatum is apparently weedy throughout much of its range."

602	Produces viable seed	Y
	<b>Source(s)</b>	<b>Notes</b>
	Zhenghao Xu & Le Chang. 2017. Identification and Control of Common Weeds: Volume 3. Zhejiang University Press, Hangzhou and Springer Nature Singapore	"Diffusion Characteristics - Seed reproduction."
	McCarty, L.B., Everest, J.W., Hall, D.W., Murphy, T.R. & Yelverton, F. (2001). Color Atlas of Turfgrass Weeds. Sleeping Bear Press, Chelsea, MI	"Propagation: Seed"

603	Hybridizes naturally	
	<b>Source(s)</b>	<b>Notes</b>
	Alves, S., Tiago, L., Chauveau, O., Eggers, L., & Souza-Chies, T. T. 2014. Species discrimination in <i>Sisyrinchium</i> (Iridaceae): assessment of DNA barcodes in a taxonomically challenging genus. <i>Molecular Ecology Resources</i> , 14(2): 324-335	[Can probably hybridize] "Several North American taxa from Clade IX (e.g. <i>Sisyrinchium idahoense</i> E.P. Bicknell, <i>Sisyrinchium littorale</i> Greene and <i>Sisyrinchium montanum</i> Greene) present breeding systems permissive to hybridization (Henderson 1976; Cholewa & Henderson 1984), and reproductive isolation is not complete for species nested within Clade VII, such as <i>Sisyrinchium rosulatum</i> E.P. Bicknell and <i>Sisyrinchium iridifolium</i> Kunth (Yamaguchi & Hirai 1987)."
	Yamaguchi, H., & Hirai, S. (1987). Natural hybridization and flower color inheritance in <i>Sisyrinchium rosulatum</i> Bickn. <i>Weed Research (Japan)</i> .32(1): 38-45	[Possibly hybridizes with a related but separate taxon] "Plants showing intermediate features between <i>Sisyrinchium rosulatum</i> BICKN. and a pale-purple flowered race (L-race) occur on the university campus of the authors. Based on morphological and cytological studies it was confirmed that these plants are natural hybrids between <i>S. rosulatum</i> and L-race. <i>S. rosulatum</i> , L-race and their hybrids had 32 chromosomes in mitotic cells, but their hybrids were sterile and showed a multipolar division in PMC and a low pollen fertility. L-race may be a related but separate taxon of <i>S. rosulatum</i> . Genetic investigation of flower color indicated that the white is dominant over the purple by a single Mendelian factor in <i>S. rosulatum</i> . Flower color variation in <i>S. rosulatum</i> may have resulted from the polymorphic occurrence of flower color controlled by major gene (s) and natural hybridization with the related species."

604	Self-compatible or apomictic	Y
	<b>Source(s)</b>	<b>Notes</b>
	Kenton, A. Y., Rudall, P. J., & Johnson, A. R. (1986). Genome size variation in <i>Sisyrinchium</i> L.(Iridaceae) and its relationship to phenotype and habitat. <i>Botanical Gazette</i> , 147(3): 342-354	" <i>Sisyrinchium</i> , a complex genus in the Iridaceae, is restricted almost entirely to the Americas. Because of the weedy and self-fertile nature of many of its species, its taxonomy has been poorly resolved (GOLDBLATT 1982)."

Qsn #	Question	Answer
	Yamaguchi, H., & Hirai, S. (1987). Natural hybridization and flower color inheritance in <i>Sisyrinchium rosulatum</i> Bickn. Weed Research (Japan).32(1): 38-45	"The artificial crosses were relatively easy (Table 2), though a castration was performed due to the self-compatible habit."
	Rudall, P., Kenton, A. Y., & Lawrence, T. J. (1986). An anatomical and chromosomal investigation of <i>Sisyrinchium</i> and allied genera. Botanical Gazette, 147(4): 466-477	"The taxonomy of <i>Sisyrinchium</i> is notoriously confused. Many attempts to classify the North American species have proved difficult because they are highly self-fertile, which causes considerable variation between, and uniformity within, populations (Mosquin 1970)."

605	Requires specialist pollinators	n
	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	"Flowers: perianth flaring distally, campanulate basally; tepals maroon or pink to lavender-rose with purple stripes, or yellow with rosy purple bases; outer tepals 5–11 mm, apex acute, rarely aristate; filaments connate basally, occasionally to 1/2 their length, basally inflated and stipitate glandular 0.5–0.8 mm; ovary similar in color to foliage."
	Arroyo, M. T. K., Primack, R., & Armesto, J. (1982). Community studies in pollination ecology in the high temperate Andes of central Chile. I. Pollination mechanisms and altitudinal variation. American Journal of Botany 69(1): 82-97	"Important bee-pollinated genera are <i>Adesmia</i> , <i>Anarthrophyllum</i> , <i>Astragalus</i> , <i>Calceolaria</i> , <i>Loasa</i> , <i>Phacelia</i> , <i>Schizanthus</i> , <i>Sisyrinchium</i> , <i>Solanum</i> , and <i>Stachys</i> ."
	Kubitzki, K. (ed.). (1998). The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Unspecialised generalist pollination is suspected for the small, radially symmetric flowers of genera such as <i>Olsynium</i> , <i>Orthrosanthus</i> and <i>Sisyrinchium</i> ."

606	Reproduction by vegetative fragmentation	
	Source(s)	Notes
	Eastman, J. & Hansen, A.. (2003). The Book of Field and Roadside: Open-country Weeds, Trees, and Wildflowers of Eastern North America. Stackpole Books, Mechanicsburg, PA	"Blue-eyed grasses also reproduce vegetatively, rising from masses of fibrous rhizomes, subsurface stems that also store food." [General description. Other references only report that <i>Sisyrinchium rosulatum</i> spreads by seeds]
	Zhenghao Xu & Le Chang. 2017. Identification and Control of Common Weeds: Volume 3. Zhejiang University Press, Hangzhou and Springer Nature Singapore	"Diffusion Characteristics Seed reproduction."

607	Minimum generative time (years)	1
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Annual. Life cycle <1 year] "Annual or short-lived perennial herbs, 8-27 cm tall; flowering stems narrowly winged, with basal leaves and 2-3 internodes bearing cauline leaves, roots fibrous."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Cooke, D.A. (2020) <i>Sisyrinchium rosulatum</i> , in P.G. Kodala (ed.), <i>Flora of Australia</i> . Australian Biological Resources Study, Department of Agriculture, Water and the Environment: Canberra. <a href="https://profiles.ala.org.au/opus/foa/profile/Sisyrinchium%20rosulatum">https://profiles.ala.org.au/opus/foa/profile/Sisyrinchium%20rosulatum</a> . [Accessed 8 Apr 2021]	[Occurs along heavily trafficked corridors, suggesting attachment to vehicles, equipment, or footwear may result in inadvertent dispersal] "A locally common weed along roads and tracks, in lawns, wasteland, woodlands, littoral rainforest, creek bank, drainage and seepage areas, and in poorly-drained rough pasture."
	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	[Small seed size and distribution along roads likely aids in dispersal along heavily trafficked corridors, despite seeds lacking means of external attachment] "Seeds ± globose, sometimes with slight depression, 0.5–1 mm, rugulose" ... "Roadsides, old fields, and other disturbed areas, stream banks, wet areas bordering woods"

702	Propagules dispersed intentionally by people	n
	<b>Source(s)</b>	<b>Notes</b>
	McCarty, L.B., Everest, J.W., Hall, D.W., Murphy, T.R. & Yelverton, F. (2001). <i>Color Atlas of Turfgrass Weeds</i> . Sleeping Bear Press, Chelsea, MI	[Some intentional planting may occur where it is native, but generally regarded as a weed of lawns. No evidence of intentional dispersal in the Hawaiian Islands] "Found on moist sites in lawns, roadsides, golf courses, and pastures."

703	Propagules likely to disperse as a produce contaminant	n
	<b>Source(s)</b>	<b>Notes</b>
	McCarty, L.B., Everest, J.W., Hall, D.W., Murphy, T.R. & Yelverton, F. (2001). <i>Color Atlas of Turfgrass Weeds</i> . Sleeping Bear Press, Chelsea, MI	[Occurrence as a weed in lawns & pastures could result in accidental dispersal in hay or grass cuttings] "Found on moist sites in lawns, roadsides, golf courses, and pastures."

704	Propagules adapted to wind dispersal	n
	<b>Source(s)</b>	<b>Notes</b>
	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	[Wind may aid in dispersal of small seeds, but no morphological adaptations exist specifically for wind dispersal] "Capsules tan with purplish sutures and sometimes apex, ± globose, 2.1–4.2 mm; pedicel spreading to recurved. Seeds ± globose, sometimes with slight depression, 0.5–1 mm, rugulose."

Qsn #	Question	Answer
705	<b>Propagules water dispersed</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Cooke, D.A. (2020) <i>Sisyrinchium rosulatum</i> , in P.G. Kodela (ed.), <i>Flora of Australia</i> . Australian Biological Resources Study, Department of Agriculture, Water and the Environment: Canberra. <a href="https://profiles.ala.org.au/opus/foa/profile/Sisyrinchium%20rosulatum">https://profiles.ala.org.au/opus/foa/profile/Sisyrinchium%20rosulatum</a> . [Accessed 8 Apr 2021]	[Occurrence along creek banks and seepages suggest water may aid in dispersal] "A locally common weed along roads and tracks, in lawns, wasteland, woodlands, littoral rainforest, creek bank, drainage and seepage areas, and in poorly-drained rough pasture."
	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	[Water may move seeds along stream banks] "Roadsides, old fields, and other disturbed areas, stream banks, wet areas bordering woods"

706	<b>Propagules bird dispersed</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Sunil, C. N., & Pradeep, A. K. (2011). <i>Sisyrinchium</i> (Iridaceae): A new genus record for India. <i>Rheedea</i> , 21(2): 170-172	"Capsules globose to subglobose, 3 – 4 mm across, pale beige to straw-coloured. Seeds numerous, angled, rugose, black with a shallow depression."
	Eastman, J. & Hansen, A.. (2003). <i>The Book of Field and Roadside: Open-country Weeds, Trees, and Wildflowers of Eastern North America</i> . Stackpole Books, Mechanicsburg, PA	[Birds probably act as seed predators, but some viable seeds may possibly be dispersed] "Prairie-chickens and wild turkeys are known to consume the seed capsules. Probably other ground-feeding birds and mammals do likewise."

707	<b>Propagules dispersed by other animals (externally)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	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	[Small size may allow seeds to become attached to animals in mud] "Capsules tan with purplish sutures and sometimes apex, ± globose, 2.1–4.2 mm; pedicel spreading to recurved. Seeds ± globose, sometimes with slight depression, 0.5–1 mm, rugulose."

708	<b>Propagules survive passage through the gut</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Ishikawa, H. (2011). Seed contents of sika deer ( <i>Cervus nippon</i> ) dung and the fate of seeds in a temperate short grassland in an urban park in Japan. <i>Journal of Ecology and Field Biology</i> 34(3): 295-305	[1 intact seed of <i>Sisyrinchium rosulatum</i> collected] "Table 1. Herbaceous plant species growing in the plant community at the study site from May 2000 to December 2003, and the maximum number of seeds per sika deer fecal pellet and the total number of seeds contained in the pellets (530 pellets from May to November 1999 and from April to November in 2000 and 2001) collected in the Tobihino area of Nara Park"

801	<b>Prolific seed production (&gt;1000/m2)</b>	
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Cooke, D.A. (2020) <i>Sisyrinchium rosulatum</i> , in P.G. Kodela (ed.), Flora of Australia. Australian Biological Resources Study, Department of Agriculture, Water and the Environment: Canberra. <a href="https://profiles.ala.org.au/opus/foa/profile/Sisyrinchium%20rosulatum">https://profiles.ala.org.au/opus/foa/profile/Sisyrinchium%20rosulatum</a> . [Accessed 8 Apr 2021]	"Capsule globose, 2–3 mm diam., glabrous, green to reddish. Seeds globose, c. 0.7 mm diam., rugose, black." [Densities unknown]

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. (2021) Seed Information Database (SID). Version 7.1. <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a> . [Accessed 8 Apr 2021]	"Storage Behaviour: Orthodox Storage Conditions: 95 % viability following drying to mc's in equilibrium with 15 % RH and freezing for 7 weeks at -20C at RBG Kew, WP"
	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	[Seed longevity unknown, but as an annual, seeds would persist in the soil for approximately 1 year at least] "Herbs, annual or short-lived perennial"

803	Well controlled by herbicides	y
	Source(s)	Notes
	McCarty, L. B. & Miller, G. (2002). Managing Bermudagrass Turf: Selection, Construction, Cultural Practices, and Pest Management Strategies. Ann Arbor Press, Chelsea, MI	"Control. Products containing atrazine or simazine applied twice 30 days apart. Prompt (a premix of atrazine and Basagran) also works well. Sencor also provides excellent control in tolerant turfgrass. Products containing two- or three-way broadleaf herbicide mixtures applied at least twice seven days apart also work. The key to control is to apply products in fall when the weed is immature."
	Zhenghao Xu & Le Chang. 2017. Identification and Control of Common Weeds: Volume 3. Zhejiang University Press, Hangzhou and Springer Nature Singapore	"Management Chemical control can choose dimethametryn or Londax."
	McCarty, L.B., Everest, J.W., Hall, D.W., Murphy, T.R. & Yelverton, F. (2001). Color Atlas of Turfgrass Weeds. Sleeping Bear Press, Chelsea, MI	"Postemergence control includes repeat applications of imazaquin, metsulfuron, atrazine/simazine, or metribuzin."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. (2021). Personal Communication	Unknown

**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Can grow in temperate to subtropical climates (& could invade higher elevation tropical climates)
- Naturalized in a number of locations
- Controlled as a weed of lawns & golf courses
- Other *Sisyrinchium* species have become weeds
- Reported to be toxic to animals
- Tolerates shade
- Tolerates many soil types
- May hybridize with other *Sisyrinchium* species
- Self-compatible
- Can reach maturity in one growing season
- Small seeds may be accidentally dispersed
- Seeds may also be dispersed internally by animals

Low Risk Traits

- Unarmed (no spines, thorns or burrs)
- Ornamental
- Not reported to spread vegetatively