

Family: Poaceae

Taxon: Koeleria glauca

Synonym: *Aira glauca* Spreng. Common Name Large blue hairgrass
Koeleria cristata var. *glauca* (Spreng.) G. Me Glaucous hairgrass
Koeleria macrantha subsp. *glauca* (Spreng.) Crested hair grass
Poa glauca Schkuhr

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: L
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score 3
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
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)	Low
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	n
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	n
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)	n
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)	
401	Produces spines, thorns or burrs		y=1, n=0	n
402	Allelopathic		y=1, n=0	n
403	Parasitic		y=1, n=0	n
404	Unpalatable to grazing animals		y=1, n=-1	y
405	Toxic to animals		y=1, n=0	n
406	Host for recognized pests and pathogens		y=1, n=0	n
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	n

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	n
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	y
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	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
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)	y=1, n=-1	
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	y
704	Propagules adapted to wind dispersal	y=1, n=-1	
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	y
708	Propagules survive passage through the gut	y=1, n=-1	
801	Prolific seed production (>1000/m2)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	
Designation: L		WRA Score 3	

Supporting Data:

101	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	1999. Darke, R.. The color encyclopedia of ornamental grasses: sedges, rushes, restios, cat-tails, and selected bamboos. Timber Press, Portland, OR	"Native to Europe and north temperate Asia, particularly on sandy soils."
201	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	"Europe, Russia, Mongolia." [adapted to temperate climates]
202	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	"Europe, Russia, Mongolia." [adapted to temperate climates]
203	1994. Nash, L.J./Witt, M.L./Tapp, L./Powell Jr., A.J.. Ornamental Grasses for Kentucky Landscapes. HO-79. Cooperative Extension Service, University of Kentucky College of Agriculture,	"Perennial, cool-season...Hardiness: Zones 3-9...Excellent grass for small yards; grows poorly in hot climates."
203	1998. King, M./Oudolf, P.. Gardening with grasses. Terra Publishing Co., Warnsweld, Netherlands	"Zones 5-9."
204	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	No evidence
205	1994. Nash, L.J./Witt, M.L./Tapp, L./Powell Jr., A.J.. Ornamental Grasses for Kentucky Landscapes. HO-79. Cooperative Extension Service, University of Kentucky College of Agriculture,	Cultivated as an ornamental in Kentucky
205	2001. Kirsten, K.. Gardening with Keith Kirsten. Struik Publishers, Cape Town, South Africa	Cultivated as an ornamental in South Africa
205	2011. Bluestem Nursery. Koeleria glauca - Blue Hair Grass. http://www.bluestem.ca/koeleria-glauca.htm	Grown ornamentally in British Columbia and Washington
205	2011. WRA Specialist. Personal Communication.	Widely cultivated as an ornamental
301	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	No evidence
301	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	Listed as a "Casual Alien" [but no other records on naturalization]
301	2011. WRA Specialist. Personal Communication.	No evidence
302	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	No evidence
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	Several species of Koeleria are listed as naturalized and/or weeds of some type, but subsequent literature searches failed to find information on impacts or control efforts within introduces ranges.

401	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	"Perennial bunchgrass, densely tufted, rather short-lived, rhizomatous, compact, silver-blue to green-bluish foliage, silver-green flower spikes, attractive, ornamental, very drought resistant, found in sand soil, wet meadow area, rocky hillside, gravelly soil." [no spines, thorns or burrs]
402	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	No evidence of allelopathy
403	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	"Perennial bunchgrass, densely tufted, rather short-lived, rhizomatous, compact, silver-blue to green-bluish foliage, silver-green flower spikes..." [not parasitic]
404	2002. Stroh, M./Storm, C./Zehm, A./Schwabe, A.. Restorative grazing as a tool for directed succession with diaspore inoculation: the model of sand ecosystems. Phytocoenologia. 32(4): 595-625.	"The grazing preferences differ markedly among phytosociological groups. Sheep prefer Artemisietaea species, followed by Stellarietaea and Molinio-Arrhenatheretea species (Fig. 6b). On the other hand, Festuco-Brometea and Koelerio-Coryneporetea species are much more rarely chosen. However, donkeys feed on a number of Festuco-Brometea and Koelerio-Coryneporetea species, although several target species were rejected, e. g. Alyssum montanum ssp. gmelinii, Koeleria glauca and Poa badensis." [not consumed by donkeys or sheep]
404	2011. Deer Proof Gardens. Plant List. http://www.deerproofgardens.com/plant-list/	Listed as a deer resistant plant
405	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	No evidence
406	2011. Missouri Botanical Garden. Kemper Center for Home Gardening PlantFinder - Koeleria glauca. http://www.mobot.org/gardeninghelp/plantfinder/plant.asp?code=K830	"No serious insect or disease problems."
407	2011. Dave's Garden. PlantFiles: Large Blue June Grass, Large Blue Hair Grass - Koeleria glauca. http://davesgarden.com/guides/pf/go/32260/	Danger: N/A
407	2011. WRA Specialist. Personal Communication.	No evidence
408	2005. Knutson-Pedersen, J.. Fire Safe Landscaping. Tree Notes. Number 17 (revised). California Department of Forestry and Fire Protection, ceres.ca.gov/foreststeward/pdf/treenote17.pdf	"The following is a partial list of plants that can be planted within each of the four zones around a structure. This plant list is a compilation of observations and research. More research on fire retardant vegetation needs to be conducted to produce a definitive list. Sunset's new Western Garden Book is an excellent source for specific plant descriptions. Visits to community botanical gardens and organizations such as the California Native Plant Society are also good resources for determining appropriate plant selections for your area." [no evidence, and K. glauca listed among fire safe plants for cultivation in fire prone areas]
409	1994. Nash, L.J./Witt, M.L./Tapp, L./Powell Jr., A.J.. Ornamental Grasses for Kentucky Landscapes. HO-79. Cooperative Extension Service, University of Kentucky College of Agriculture,	"Culture: Full sun...does not tolerate heavy, wet soil or shady sites."
409	1998. King, M./Oudolf, P.. Gardening with grasses. Terra Publishing Co., Warnsweld, Netherlands	"Short-lived in average garden soils, this evergreen grass prefers infertile, slightly alkaline soils in full sun."
409	2002. Ondra, N.J./Holt, S.. Grasses: versatile partners for uncommon garden design. Storey Publishing, North Adams, MA	"Full sun; average to poor, well-drained soil."
410	1994. Nash, L.J./Witt, M.L./Tapp, L./Powell Jr., A.J.. Ornamental Grasses for Kentucky Landscapes. HO-79. Cooperative Extension Service, University of Kentucky College of Agriculture,	"Full sun; alkaline soil; good drainage; does not tolerate heavy, wet soil or shady sites."
410	2011. Bluestem Nursery. Koeleria glauca - Blue Hair Grass. http://www.bluestem.ca/koeleria-glauca.htm	"tolerates a wide range of soil types; good drainage essential"

411	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	"Perennial bunchgrass, densely tufted, rather short-lived, rhizomatous, compact, silver-blue to green-bluish foliage, silver-green flower spikes..." [not climbing or smothering]
412	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	No evidence
412	2011. WRA Specialist. Personal Communication.	No evidence
501	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	"Perennial bunchgrass, densely tufted, rather short-lived, rhizomatous, compact, silver-blue to green-bluish foliage, silver-green flower spikes..." [terrestrial]
502	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	Poaceae
503	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	Poaceae [not a nitrogen fixing woody plant]
504	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	"Perennial bunchgrass, densely tufted, rather short-lived, rhizomatous, compact, silver-blue to green-bluish foliage, silver-green flower spikes..." [not a geophyte]
601	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	No evidence
602	2007. Bojňanský, V./Fargašová, A.. Atlas of Seeds and Fruits of Central and East-European Flora: The Carpathian Mountains Region. Springer, Dordrecht, The Netherlands	"Florets oblong-lanceolate, lemma acute or obtuse, short hirsute on keel, surface coarse, palea membranous, 2-dentate, coarse, 3.5-4 x 0.7-0.8 mm. Caryopses clubbed, lateral flat, 2.4-2.7 x 0.6-0.7 mm."
603	2011. WRA Specialist. Personal Communication.	Unknown
604	2011. WRA Specialist. Personal Communication.	Unknown
605	1994. Zomlefer, W.B.. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London	"The reduced flowers are anemophilous,," [Poaceae]
606	2011. Dave's Garden. PlantFiles: Large Blue June Grass, Large Blue Hair Grass - Koeleria glauca. http://davesgarden.com/guides/pf/go/32260/	"Propagation Methods: By dividing the rootball From seed; sow indoors before last frost"
607	2011. Missouri Botanical Garden. Kemper Center for Home Gardening PlantFinder - Koeleria glauca. http://www.mobot.org/gardeninghelp/plantfinder/plant.asp?code=K830	"This grass may only live for 2-3 years, particularly if planted in the moist, fertile environment of a typical border."
607	2011. Shoot Gardening. Koeleria glauca (Glaucous hair-grass). http://www.shootgardening.co.uk/plant/koeleria-glauca	"1-2 years to maturity"
701	2011. WRA Specialist. Personal Communication.	Possibly, due to ability to attach to sheep wool (see 7.07). May be able to attach to clothing or other surfaces, but no evidence found.
702	1999. Darke, R.. The color encyclopedia of ornamental grasses: sedges, rushes, restios, cat-tails, and selected bamboos. Timber Press, Portland, OR	"Native to Europe and north temperate Asia, particularly on sandy soils. To 2 ft. (60 cm) tall in bloom. Leaves strongly greenish blue. Zone 6." [grown as an ornamental]

703	2008. Wessels, S./Eichberg, C./Storm, C./Schwabe, A.. Do plant-community-based grazing regimes lead to epizoochorous dispersal of high proportions of target species?. <i>Flora</i> . 203(4): 304-326.	"Table 1. Mean seed numbers per 100 cm ² sheep coat, before and after inter-area sheep transfers" [<i>Koeleria glauca</i> seeds can become a contaminant of sheep wool]
704	2007. Bojňanský, V./Fargašová, A.. Atlas of Seeds and Fruits of Central and East-European Flora: The Carpathian Mountains Region. Springer, Dordrecht, The Netherlands	"Florets oblong-lanceolate, lemma acute or obtuse, short hirsute on keel, surface coarse, palea membranous, 2-dentate, coarse, 3.5-4 x 0.7-0.8 mm. Caryopses clubbed, lateral flat, 2.4-2.7 x 0.6-0.7 mm." [possibly adapted for short distance wind dispersal]
705	1933. Illichevsky, S.. The River as a Factor of Plant Distribution. <i>Journal of Ecology</i> . 21(2): 436-441.	"Plants of the non-inundated belt which never occur in the flooded region... <i>Koeleria glauca</i> DC. (only on second sandy terrace" [apparently not water dispersed]
706	2007. Bojňanský, V./Fargašová, A.. Atlas of Seeds and Fruits of Central and East-European Flora: The Carpathian Mountains Region. Springer, Dordrecht, The Netherlands	"Florets oblong-lanceolate, lemma acute or obtuse, short hirsute on keel, surface coarse, palea membranous, 2-dentate, coarse, 3.5-4 x 0.7-0.8 mm. Caryopses clubbed, lateral flat, 2.4-2.7 x 0.6-0.7 mm." [could possibly attach to bird feathers, but no evidence found, and otherwise not adapted for bird dispersal]
707	2008. Wessels, S./Eichberg, C./Storm, C./Schwabe, A.. Do plant-community-based grazing regimes lead to epizoochorous dispersal of high proportions of target species?. <i>Flora</i> . 203(4): 304-326.	"Table 1. Mean seed numbers per 100 cm ² sheep coat, before and after inter-area sheep transfers" [<i>Koeleria glauca</i> seeds documented in sheep coats]
707	2010. Wessels-de Wit, S./Schwabe, A.. The fate of sheep-dispersed seeds: Plant species emergence and spatial patterns. <i>Flora</i> . 205: 656-665.	"Sheep epizoochory has often been proposed as an important vector which can help to overcome the dispersal limitation of plants in fragmented landscapes. In order to evaluate the contribution of herbivores to recruitment especially of target species, the dispersal and post-dispersal fate of such seeds must be known. In a field experiment sheep with seeds of mainly target species (experimentally attached to their coats) were present at three sand plots for 24 h. Natural epizoochorous dispersal was already shown for most of the species in our study area. Seed detachment, trampling intensity and seed shadow were measured; seedling emergence and survival were recorded over an 8-month period. In addition, the effect of sheep trampling on seedling emergence and survival of two threatened species, <i>Jurinea cyanoides</i> and <i>Koeleria glauca</i> , were studied. A high proportion of seeds detached from the sheep coats and became well established. Spatial Analysis by Distance Indices (SADIE) showed that trampling, seed shadow, and emergence patterns were nonrandomly distributed over the plots. Between most of those patterns spatial associations existed. Overall, sheep abundance was positively correlated with detected seed numbers and emergence rates. On species level it enhanced seedling emergence of large seeded <i>J. cyanoides</i> , whereas no difference between the treatments was found in case of <i>K. glauca</i> . In conclusion, a short visit of sheep moving from reference areas to isolated restoration sites can result in successful establishment of target species through a high seed input and the creation of safe sites by trampling."
708	2011. WRA Specialist. Personal Communication.	Unknown
801	2011. WRA Specialist. Personal Communication.	Unknown
802	2011. WRA Specialist. Personal Communication.	Unknown
803	2011. WRA Specialist. Personal Communication.	Unknown. No information found on control of this species with herbicides.
804	2011. Missouri Botanical Garden. Kemper Center for Home Gardening PlantFinder - <i>Koeleria glauca</i> . http://www.mobot.org/gardeninghelp/plantfinder/plant.asp?code=K830	"Cut to the ground in late winter." [possibly tolerates mowing, or cutting back]
805	2011. WRA Specialist. Personal Communication.	Unknown