

Taxon: *Andropogon glomeratus* (Walter) Britton, Sterns & Poggenb. **Family:** Poaceae

Common Name(s): bushy beard grass
bushy bluestem
chalky bluestem **Synonym(s):** Basionym: *Cinna glomerata* Walter

Assessor: No Assessor

Status: Assessor Approved

End Date: 14 May 2018

WRA Score: 16.0

Designation: H(HPWRA)

Rating: High Risk

Keywords: Perennial Bunchgrass, Weedy, Forage, Ornamental, Self-Seeds

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	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	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	n
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		
408	Creates a fire hazard in natural ecosystems		

Qsn #	Question	Answer Option	Answer
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	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	y
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
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	y
705	Propagules water dispersed	y=1, n=-1	y
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	y=-1, n=1	n
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
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
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[No evidence of domestication] "Central and southern America, West Indies, Greater Antilles, Mexico, eastern and southern U.S., Florida, Costa Rica."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2018. 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
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 13 May 2018]	"Native Northern America NORTHEASTERN U.S.A.: United States [Massachusetts, New Jersey, New York (s.e.), Ohio (s.), Pennsylvania, West Virginia] NORTH-CENTRAL U.S.A.: United States [Oklahoma] SOUTHEASTERN U.S.A.: United States [Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee (http://tenn.bio.utk.edu/vascular/database/vascular-database.asp?CategoryID=Monocots&FamilyID=Poaceae&GenusID=Andropogon&SpeciesID=glomeratus), Virginia] SOUTH-CENTRAL U.S.A.: United States [New Mexico, Texas] SOUTHWESTERN U.S.A.: United States [Arizona, California (s.), Nevada (s.), Utah (s.)] Mexico Southern America CARIBBEAN: Antigua and Barbuda, Bahamas, Cuba, Grenada, Guadeloupe, Hispaniola, Jamaica, Martinique, Montserrat, Puerto Rico, St. Kitts and Nevis, St. Lucia CENTRAL AMERICA: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama NORTHERN SOUTH AMERICA: Venezuela WESTERN SOUTH AMERICA: Colombia"

202	Quality of climate match data	High
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Qsn #	Question	Answer
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 13 May 2018]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Dave's Garden. 2018. Bluestem, Blue Stem Grass, Bushy Beard Grass - <i>Andropogon glomeratus</i> . https://davesgarden.com/guides/pf/go/152869/ . [Accessed 13 May 2018]	"Hardiness: USDA Zone 3a: to -39.9 °C (-40 °F) USDA Zone 3b: to -37.2 °C (-35 °F) USDA Zone 4a: to -34.4 °C (-30 °F) USDA Zone 4b: to -31.6 °C (-25 °F) USDA Zone 5a: to -28.8 °C (-20 °F) USDA Zone 5b: to -26.1 °C (-15 °F) USDA Zone 6a: to -23.3 °C (-10 °F) USDA Zone 6b: to -20.5 °C (-5 °F) USDA Zone 7a: to -17.7 °C (0 °F) USDA Zone 7b: to -14.9 °C (5 °F) USDA Zone 8a: to -12.2 °C (10 °F) USDA Zone 8b: to -9.4 °C (15 °F)"
	Tropicos.org. 2018. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 13 May 2018]	Collected from 0 - 2400 m elevation over latitudes of 06°51'16"N to 25°10'00"N

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Snow, N. & Lau, A. 2010. Notes on grasses (Poaceae) in Hawai'i: 2. Bishop Museum Occasional Papers 107: 46–60	" <i>Andropogon glomeratus</i> var. <i>pumilus</i> is known from Midway, ōahu, and Hawai'i islands. It was first collected on Midway on 5 January 1979, though it was misidentified as <i>A. virginicus</i> (see <i>A. virginicus</i> discussion below). According to the specimen label data it had been recently established near the runway. It was first collected in the main islands on ōahu in 2002, from Hālawā Valley along the newly constructed H-3 freeway, occasionally growing in dense thickets. After it was originally identified as <i>Schizachyrium condensatum</i> an eradication program was started by the ōahu Invasive Species Committee (but see note below about confirmed distribution of <i>S. condensatum</i> in Hawai'i). It was next collected from the Big Island in 2003 in the Kahuku unit of Hawaii Volcanoes National park, where it was a common grass in pastures at 700 m."
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Central and southern America, West Indies, Greater Antilles, Mexico, eastern and southern U.S., Florida, Costa Rica."
	Herbst, Derrall R. & Clayton, W. D. 1998. Notes on the grasses of Hawai'i: new records, corrections, and name changes. Bishop Museum Occasional Papers. 55:17-38	" <i>Schizachyrium condensatum</i> (Kunth) Nees has consistently been misidentified in the Hawaiian Islands as <i>A. glomeratus</i> . The true <i>A. glomeratus</i> has now been documented from the islands, based upon 5 collections from the island of Kaua'i. The species is native from southern USA to Mexico."

Qsn #	Question	Answer
205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	CABI. 2018. Invasive Species Compendium. Wallingford , UK: CAB International. www.cabi.org/isc	"A. glomeratus is native to southeastern USA, Mexico and parts of Central America, South America and the Caribbean. It has been introduced to Hawaii, Honshu (Japan) and South Africa."
	Herbst, Derral R. & Clayton, W. D. 1998. Notes on the grasses of Hawai'i: new records, corrections, and name changes. Bishop Museum Occasional Papers. 55:17-38	"Schizachyrium condensatum (Kunth) Nees has consistently been misidentified in the Hawaiian Islands as A. glomeratus. The true A. glomeratus has now been documented from the islands, based upon 5 collections from the island of Kaua'i. The species is native from southern USA to Mexico."

301	Naturalized beyond native range	y
	Source(s)	Notes
	CABI. 2018. Invasive Species Compendium. Wallingford , UK: CAB International. www.cabi.org/isc	"A. glomeratus is a perennial species native to the southeastern USA, Mexico and parts of Central Mexico and the Caribbean. Because of its popularity as an ornamental grass, it has been introduced to areas outside its native range, where it has become naturalized, notably in Hawaii, Central Europe, South Africa and Japan."
	Snow, N. & Lau, A. 2010. Notes on grasses (Poaceae) in Hawai'i: 2. Bishop Museum Occasional Papers 107: 46-60	"Andropogon glomeratus var. pumilus is known from Midway, Oahu, and Hawai'i islands. It was first collected on Midway on 5 January 1979, though it was misidentified as A. virginicus (see A. virginicus discussion below). According to the specimen label data it had been recently established near the runway. It was first collected in the main islands on O'ahu in 2002, from Hälawa Valley along the newly constructed H-3 freeway, occasionally growing in dense thickets. After it was originally identified as Schizachyrium condensatum an eradication program was started by the O'ahu Invasive Species Committee (but see note below about confirmed distribution of S. condensatum in Hawai'i). It was next collected from the Big Island in 2003 in the Kahuku unit of Hawaii Volcanoes National park, where it was a common grass in pastures at 700 m."
	Herbst, Derral R. & Clayton, W. D. 1998. Notes on the grasses of Hawai'i: new records, corrections, and name changes. Bishop Museum Occasional Papers. 55:17-38	"Schizachyrium condensatum (Kunth) Nees has consistently been misidentified in the Hawaiian Islands as A. glomeratus. The true A. glomeratus has now been documented from the islands, based upon 5 collections from the island of Kaua'i. The species is native from southern USA to Mexico."

302	Garden/amenity/disturbance weed	y
	Source(s)	Notes

Qsn #	Question	Answer
	CABI. 2018. Invasive Species Compendium. Wallingford , UK: CAB International. www.cabi.org/isc	"A. glomeratus is a perennial species native to the southeastern USA, Mexico and parts of Central Mexico and the Caribbean. Because of its popularity as an ornamental grass, it has been introduced to areas outside its native range, where it has become naturalized, notably in Hawaii, Central Europe, South Africa and Japan. This species invasively self-seeds under proper growing conditions (PIER, 2008). In Mexico, it is considered a potentially invasive weed (Sánchez-Ken et al., 2012). In Puerto Rico, it has been listed as a weed (Cardenas and Coulston, 1967). In Hawaii, it is considered a noxious weed (PIER, 2008). Although it is not know to occur in other Pacific islands, because of its invasiveness in similar ecosystems, this species is considered an invasive species of environmental concern in Samoa (Space and Flynn, 2002a), Cook Islands (Space and Flynn, 2002b) and Palau (Space et al., 2003)."
	Rogers, G .K. 2016. Landscape Plants for South Florida - Bushy Bluestem - <i>Andropogon glomeratus</i> . Palm Beach State College, Palm Beach Gardens, Florida. http://www.plantbook.org/ . [Accessed 14 May 2018]	"Means of Dispersal: Can aggressively self-seed in optimum growing conditions."
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"ornamental, naturalized, weed species, medicinal, forage, potential seed contaminant, grown for its attractive foliage"
	Snow, N. & Lau, A. 2010. Notes on grasses (Poaceae) in Hawai'i: 2. Bishop Museum Occasional Papers 107: 46–60	[Disturbance-adapted weedy grass] "In Hawai'i, <i>A. glomeratus</i> var. <i>pumilus</i> grows in a wide range of habitats, such as in ditches and disturbed areas of an atoll, mesic to wet areas of disturbed lowland sites, secondary forests from sea level to 700 m, and the windward Ko'olau Pali on o'ahu. It has been reported but not confirmed from native forest slopes on the leeward side of the Ko'olau summit."

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	Cited as an agricultural weed, but unable to confirm evidence of impacts in references cited

304	Environmental weed	
	Source(s)	Notes
	CABI. 2018. Invasive Species Compendium. Wallingford , UK: CAB International. www.cabi.org/isc	"In some areas of Hawaii, <i>A. glomeratus</i> has been noted to outcompete native plant species such as <i>Heteropogon contortus</i> , <i>Dodonaea viscosa</i> and the endemic <i>Vaccinium reticulatum</i> (Taylor, 1982). Smith et al. (1980) have described the increase of <i>Andropogon</i> populations after fire (Smith et al., 1980). <i>A. glomeratus</i> is highly flammable throughout most of the year (Taylor, 1982), and so stands of this species could change fire regimes, whereby fires promote the conditions necessary to increase fire frequency and size by increasing the continuity and/or fuel loadings of alien grasses (Smith and Tunison, 1992)."
	Snow, N. & Lau, A. 2010. Notes on grasses (Poaceae) in Hawai'i: 2. Bishop Museum Occasional Papers 107: 46–60	" <i>Schizachyrium condensatum</i> (Kunth) Nees has consistently been misidentified in the Hawaiian Islands as <i>A. glomeratus</i> . The true <i>A. glomeratus</i> has now been documented from the islands, based upon 5 collections from the island of Kaua'i. The species is native from southern USA to Mexico."

Qsn #	Question	Answer
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Listed as an environmental weed, but no evidence of impacts found
	WRA Specialist. 2018. Personal Communication	The grass identified as <i>Andropogon glomeratus</i> & causing environmental problems in Hawaii Volcanoes National Park may actually be <i>Schizachyrium condensatum</i> (see Snow & Lau 2010)

305	Congeneric weed	y
	Source(s)	Notes
	Weber, E. 2003. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	" <i>Andropogon virginicus</i> ...On Hawaii, it forms dense stands in bogs, open mesic areas and dry habitats."
	Weber, E. 2017. Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	"Gamba grass invades undisturbed <i>Eucalyptus</i> savannas in northern Australia and alters the vegetation structure"

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[No evidence] "Perennial, herbaceous, caespitose, erect and robust, tussock or clump forming, stems flattened, sheaths smooth, ligule papery and pubescent, flattened blue-green leaf blades, bushy and broom-like inflorescences, feathery and clubshaped panicles, pedicellate spikelet absent, fruit a minute grain"

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Perennial, herbaceous, caespitose, erect and robust, tussock or clump forming" [No evidence]

Qsn #	Question	Answer
404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Morse, B., McElroy, M., & Miller, K. (2009). Seasonal Diets of an Introduced Population of Fallow Deer on Little St. Simons Island, Georgia. <i>Southeastern Naturalist</i> , 8(4), 571-586	"Appendix 2. Percent relative density of food items in feces of Fallow Deer on Little St. Simons Island, GA, 2004-2005 as determined by microcompositional analysis." [Includes <i>Andropogon glomeratus</i>]
	Quattrocchi, U. 2006. <i>CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"forage"
	USDA NRCS. 2008. Bushy Beardgrass - <i>Andropogon glomeratus</i> . Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed 14 May 2018]	"Wildlife: Bushy beardgrass benefits wildlife. The finch, junco, and tree sparrow eat the seeds. The white-tailed deer and rabbits browse the plant. Bushy beardgrass also provides cover for mottled ducks and fawns (white-tailed deer)."

405	Toxic to animals	n
	Source(s)	Notes
	Quattrocchi, U. 2006. <i>CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"forage" [No evidence]
	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

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	USDA NRCS. 2008. Bushy Beardgrass - <i>Andropogon glomeratus</i> . Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed 14 May 2018]	"Bushy beardgrass has no known pests or problems."
	Missouri Botanical Garden. 2018. <i>Andropogon glomeratus</i> . http://www.missouribotanicalgarden.org . [Accessed 14 May 2018]	"No serious insect or disease problems. Can aggressively self-seed in optimum growing conditions."

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	"Roots infusion drunk for itch and also applied to ivy poisoning."
	Allergy Associates. 2014. Northern California Aeroallergenic Plants. http://www.norcalallergy.com/wp-content/uploads/2014/10/Northern-CA-Allergenic-Plants.pdf . [Accessed 14 May 2018]	List of allergenic plants includes <i>Andropogon glomeratus</i> . May cause allergic reactions in susceptible individuals

408	Creates a fire hazard in natural ecosystems	
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Qsn #	Question	Answer
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[May increase fuel load, but typically found in wetter habitats] "typically occurs in moist soils in swamp peripheries and margins, lake and pond margins, marshes, pastures, depression wetlands and disturbed upland sites, low spots and coastal areas, wet ditches, disturbed wet areas, road bank, bogs, abundant in seasonal ponds and swales of pine flatwoods isolated clusters,"
	CABI. 2018. Invasive Species Compendium. Wallingford , UK: CAB International. www.cabi.org/isc	[References cited may be referring to another species, but A. glomeratus may also potentially increase fuel load in fire prone areas] "Smith et al. (1980) have described the increase of Andropogon populations after fire (Smith et al., 1980). A. glomeratus is highly flammable throughout most of the year (Taylor, 1982), and so stands of this species could change fire regimes, whereby fires promote the conditions necessary to increase fire frequency and size by increasing the continuity and/or fuel loadings of alien grasses (Smith and Tunison, 1992)."

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	USDA NRCS. 2008. Bushy Beardgrass - Andropogon glomeratus. Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed 14 May 2018]	"Bushy beardgrass does not tolerate heavy shade but will grow under light shade conditions."
	Missouri Botanical Garden. 2018. Andropogon glomeratus. http://www.missouribotanicalgarden.org . [Accessed 14 May 2018]	"Easily grown in medium to wet soils in full sun. Tolerates very light shade."
	Lady Bird Johnson Wildflower Center. 2018. Andropogon glomeratus. https://www.wildflower.org/plants/result.php?id_plant=angl2 . [Accessed 14 May 2018]	"Light Requirement: Sun" ... "Conditions Comments: Full sun and moisture essential"
	Snow, N. & Lau, A. 2010. Notes on grasses (Poaceae) in Hawai'i: 2. Bishop Museum Occasional Papers 107: 46–60	[Generally found in disturbed, & presumably high light environments] "In Hawai'i, A. glomeratus var. pumilus grows in a wide range of habitats, such as in ditches and disturbed areas of an atoll, mesic to wet areas of disturbed lowland sites, secondary forests from sea level to 700 m, and the windward Ko'olau Pali on O'ahu."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Missouri Botanical Garden. 2018. Andropogon glomeratus. http://www.missouribotanicalgarden.org . [Accessed 14 May 2018]	"Easily grown in medium to wet soils in full sun. Tolerates very light shade. Prefers moist, fertile, loamy soils that do not dry out and is generally intolerant of dry soils."
	Lady Bird Johnson Wildflower Center. 2018. Andropogon glomeratus. https://www.wildflower.org/plants/result.php?id_plant=angl2 . [Accessed 14 May 2018]	"Soil Description: Clay, Loam, Sand; Moist, moderately disturbed, relatively sterile soils. Poor drainage all right, even preferred. Tolerates salinity."

Qsn #	Question	Answer
411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Perennial, herbaceous, caespitose, erect and robust, tussock or clump forming"

412	Forms dense thickets	
	Source(s)	Notes
	Herbst, Derral R. & Clayton, W. D. 1998. Notes on the grasses of Hawai'i: new records, corrections, and name changes. Bishop Museum Occasional Papers. 55:17-38	"Schizachyrium condensatum (Kunth) Nees has consistently been misidentified in the Hawaiian Islands as <i>A. glomeratus</i> . The true <i>A. glomeratus</i> has now been documented from the islands, based upon 5 collections from the island of Kaua'i. The species is native from southern USA to Mexico."
	Vitousek, P. M. (1992). Effects of alien plants on native ecosystems. CP Stone, CW Smith, and JT Tunison. Alien plant species in native ecosystems of Hawai'i: management and research. University of Hawai'i Cooperative National Park Resources Studies Unit, Honolulu, 29-41	"Smith (1985) identified eight species of alien weeds in Hawai'i as "fire-enhancers" -- species that increase the areal extent or intensity of fires in areas where they are established. The most spectacular example involved broomsedge (<i>Andropogon glomeratus</i>) and bush beardgrass (<i>Schizachyrium condensatum</i>), both of which form dense, nearly complete canopies in seasonally dry areas after the removal of feral goats (<i>Capra hircus</i>)."
	WRA Specialist. 2018. Personal Communication	Although Vitousek (1992) mentions <i>A. glomeratus</i> , recent literature indicates that past references to this species were misidentifications.

501	Aquatic	n
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Terrestrial, but occurs in wet areas] "typically occurs in moist soils in swamp peripheries and margins, lake and pond margins, marshes, pastures, depression wetlands and disturbed upland sites, low spots and coastal areas, wet ditches, disturbed wet areas, road bank, bogs, abundant in seasonal ponds and swales of pine flatwoods isolated clusters"

502	Grass	y
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 14 May 2018]	Family: Poaceae (alt. Gramineae) Subfamily: Panicoideae Tribe: Andropogoneae Subtribe: Andropogoninae

Qsn #	Question	Answer
503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 14 May 2018]	Family: Poaceae (alt.Gramineae) Subfamily: Panicoideae Tribe: Andropogoneae Subtribe: Andropogoninae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Perennial, herbaceous, caespitose, erect and robust, tussock or clump forming, stems flattened"

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[No evidence. Widespread native range & weedy] "Central and southern America, West Indies, Greater Antilles, Mexico, eastern and southern U.S., Florida, Costa Rica." ... "ornamental, naturalized, weed species"

602	Produces viable seed	y
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"fruit a minute grain"
	USDA NRCS. 2008. Bushy Beardgrass - <i>Andropogon glomeratus</i> . Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed 14 May 2018]	"Rootstock or seeds propagate bushy beardgrass." ... "Seed germination is best when first stored at room temperature for 7-14 months. The planting should be in late winter as a dormant seeding or when daily temperatures average in the low 60's."

603	Hybridizes naturally	y
	Source(s)	Notes
	Campbell, C. S. (1982). Hybridization between <i>Andropogon glomeratus</i> var. <i>pumilus</i> and <i>A. longiberbis</i> (Gramineae) in Central Florida. <i>Brittonia</i> , 34(2), 146-150	"In a mixed population of <i>Andropogon glomeratus</i> var. <i>pumilus</i> and <i>A. longiberbis</i> in Lake County, Florida, there were six individuals morphologically intermediate between and less fertile than these two taxa."

604	Self-compatible or apomictic	y
	Source(s)	Notes

Qsn #	Question	Answer
	Campbell, C. (1982). Cleistogamy in <i>Andropogon</i> L. (Gramineae). <i>American Journal of Botany</i> , 69(10), 1625-1635	"Variation in flowering mode is clinal in <i>Andropogon glomeratus</i> (Walter) B. S. P. var. <i>glomeratus</i> . This taxon ranges from Massachusetts to Arkansas and south from Alabama to Florida (Campbell, in press). In northern populations, cleistogamy is more frequent than in populations in the southern part of the range" [Cleistogamy - self-fertilization that occurs within a permanently closed flower

605	Requires specialist pollinators	n
	Source(s)	Notes
	Zomlefer, W.B. 1994. <i>Guide to Flowering Plant Families</i> . The University of North Carolina Press, Chapel Hill & London	"The reduced flowers are anemophilous" [Poaceae]

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	USDA NRCS. 2008. <i>Bushy Beardgrass - Andropogon glomeratus</i> . Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed 14 May 2018]	[Bunchgrass. No evidence of natural vegetative spread] "It is a persistent, warm-season, perennial, low growing bunchgrass that is found from late summer to fall and reaches a height of 6 feet." ... "Rootstock or seeds propagate bushy beardgrass. However, of the two, the best propagation method is transplantation of rootstock with liberal amounts of root-laden soil onto wet mineral soils in late winter or early spring. The plants should be spaced at 18 inches because the rate of spread is slow. Spread is generally less than 0.2 feet per year in unconsolidated sediment."

607	Minimum generative time (years)	
	Source(s)	Notes
	Quattrocchi, U. 2006. <i>CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	[Unknown. Possibly 1-2 years] "Perennial, herbaceous, caespitose, erect and robust, tussock or clump forming"

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Quattrocchi, U. 2006. <i>CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	[No means of external attachment, but small size may facilitate attachment to footwear or machinery, especially along road banks & in soil] "fruit a minute grain" ... "typically occurs in moist soils in swamp peripheries and margins, lake and pond margins, marshes, pastures, depression wetlands and disturbed upland sites, low spots and coastal areas, wet ditches, disturbed wet areas, road bank, bogs, abundant in seasonal ponds and swales of pine flatwoods isolated clusters"

702	Propagules dispersed intentionally by people	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"ornamental ... grown for its attractive foliage"

703	Propagules likely to disperse as a produce contaminant	y
	Source(s)	Notes
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"potential seed contaminant"
	Darke, R. 2007. The Encyclopedia of Grasses for Livable Landscapes. Timber Press, Portland, OR	"The dry seed stalks remain mostly intact through winter and make attractive cut material." [seeds can be dispersed in dry arrangements]

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Cain, M. L., Damman, H., & Muir, A. (1998). Seed dispersal and the Holocene migration of woodland herbs. Ecological Monographs, 68(3), 325-347	"APPENDIX Maximum and mean seed-dispersal distances as reported in the literature." [Andropogon glomeratus...Dispersal Mechanism: Wind]

705	Propagules water dispersed	y
	Source(s)	Notes
	Darke, R. 2007. The Encyclopedia of Grasses for Livable Landscapes. Timber Press, Portland, OR	[Distribution around waterways suggests seeds can be dispersed by water] "This species is distinct from others in this book in its preference for relatively wet conditions, growing naturally in bogs, marshes, swamps, swales, and other low, moist ground."
	Quattrocchi, U. 2006. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Distribution around waterways suggests seeds can be dispersed by water] "typically occurs in moist soils in swamp peripheries and margins, lake and pond margins, marshes, pastures, depression wetlands and disturbed upland sites, low spots and coastal areas, wet ditches, disturbed wet areas, road bank, bogs, abundant in seasonal ponds and swales of pine flatwoods isolated clusters"

706	Propagules bird dispersed	n
	Source(s)	Notes
	USDA NRCS. 2008. Bushy Beardgrass - <i>Andropogon glomeratus</i> . Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed 14 May 2018]	[Birds are seed predators] "Bushy beardgrass benefits wildlife. The finch, junco, and tree sparrow eat the seeds. The white tailed deer and rabbits browse the plant."

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

Qsn #	Question	Answer
	Darke, R. 2007. The Encyclopedia of Grasses for Livable Landscapes. Timber Press, Portland, OR	"Produced in September, the flowers are enclosed in densely clustered bushy bracts at the top of stiffly upright stems. The dry seed stalks remain mostly intact through winter and make attractive cut material." [Unknown, but bushy bracts & intact seeds might be able to adhere to animal fur]

708	Propagules survive passage through the gut	
	Source(s)	Notes
	USDA NRCS. 2008. Bushy Beardgrass - <i>Andropogon glomeratus</i> . Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed]	[Unknown if seeds are ingested by browsing animals, and if so, whether or not they survive gut passage] "Bushy beardgrass benefits wildlife. The finch, junco, and tree sparrow eat the seeds. The white tailed deer and rabbits browse the plant."

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Clayton, W.D., Vorontsova, M.S., Harman, K.T. and Williamson, H. 2006 onwards. GrassBase - The Online World Grass Flora. http://www.kew.org/data/grasses-db.html . [Accessed 14 May 2018]	Possibly yes - a grass with relatively small seeds, but no estimates of densities found

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. (2018) Seed Information Database (SID). Version 7.1. Available from: http://data.kew.org/sid/ . [Accessed 14 May 2018]	"Storage Behaviour: Orthodox Storage Conditions: 100 % viability following drying to mc's in equilibrium with 15 % RH and freezing for 45 weeks at -20C at RBG Kew, WP"
	USDA NRCS. 2008. Bushy Beardgrass - <i>Andropogon glomeratus</i> . Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed 14 May 2018]	[Longevity in soil under natural conditions unknown] "Seed germination is best when first stored at room temperature for 7-14 months."

803	Well controlled by herbicides	n
	Source(s)	Notes
	Klingman, D.L., Bovey, R.W., Knake, E.L., Lange, A.H., Meade, J.A., Skroach, W.A., Stewart, R.E. & Wyse, D.L. 1983. USDA Weed Control Compendium. AD-BU-2281. Extension Service, U.S. Department of Agriculture, Washington, DC	2,4-D Dicamba Picloram..."Little or no effect is gained from treatments" for <i>A. glomeratus</i>

Qsn #	Question	Answer
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	USDA NRCS. 2008. Bushy Beardgrass - <i>Andropogon glomeratus</i> . Plant Guide. https://plants.usda.gov/plantguide/pdf/pg_angl2.pdf . [Accessed 14 May 2018]	"Overgrazing bushy beardgrass results in an increase of this plant. However, if bushy beardgrass becomes weedy, then burning or mowing is recommended."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Snow, N. & Lau, A. 2010. Notes on grasses (Poaceae) in Hawai'i: 2. Bishop Museum Occasional Papers 107: 46–60	[Unknown] "In Hawai'i, <i>A. glomeratus</i> var. <i>pumilus</i> grows in a wide range of habitats, such as in ditches and disturbed areas of an atoll, mesic to wet areas of disturbed lowland sites, secondary forests from sea level to 700 m, and the windward Ko'olau Pali on O'ahu."

Summary of Risk Traits:

High Risk / Undesirable Traits

- Broad climate suitability & elevation range exceeds 1000 m, demonstrating environmental versatility
- Grows in tropical climates
- Var. *pumilus* naturalized on Midway, Oahu, Hawaii & species on Kauai (Hawaiian Islands); also reported in Central Europe, South Africa, and Japan
- An aggressive, weedy self-seeder of disturbed habitats with potentially negative environmental impacts
- Other *Andropogon* species are invasive weeds
- Tolerates many soil types (if damp)
- Reproduces by seeds
- Hybridizes with other *Andropogon* species
- Self-fertile
- Seeds dispersed by wind, water, as a potential contaminant, & intentionally cultivated
- Herbicides not very effective
- Tolerates cutting, mowing & grazing

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Provides forage for grazing animals
- Ornamental
- Prefers full sun (but tolerates part shade)
- Not reported to spread vegetatively