Family: ***Poaceae***

Taxon: ***Schizachyrium condensatum***

Synonym: *Andropogon condensatus Kunth (basionym)* ***Common Name:*** Bush beardgrass
Little bluestem

Questionaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** H(Hawai'i)
Status: Assessor Approved **Data Entry Person:** HPWRA OrgData **WRA Score 13**

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)**	**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**	**n**
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)**	**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)**	**y**
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**	
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**	**y**
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**	
411	**Climbing or smothering growth habit**	**y=1, n=0**	**n**

412	**Forms dense thickets**	**y=1, n=0**	**y**
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**	**y**
702	**Propagules dispersed intentionally by people**	**y=1, n=-1**	**n**
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**	**n**
706	**Propagules bird dispersed**	**y=1, n=-1**	**n**
707	**Propagules dispersed by other animals (externally)**	**y=1, n=-1**	
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**	**y**
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)**	**y=-1, n=1**	**n**

Designation: H(Hawai'i) **WRA Score** **13**

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	[Is the species highly domesticated? No] No evidence
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Species suited to tropical or subtropical climate(s) 2-High] "Native: Southern America Northern South America: French Guiana; Guyana; Suriname; Venezuela; Brazil: Brazil; Western South America: Bolivia; Colombia; Ecuador; Peru; Southern South America: Argentina; Paraguay; Uruguay"
202	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Quality of climate match data? 2-High] "Native: Southern America Northern South America: French Guiana; Guyana; Suriname; Venezuela; Brazil: Brazil; Western South America: Bolivia; Colombia; Ecuador; Peru; Southern South America: Argentina; Paraguay; Uruguay"
203	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.	[Broad climate suitability (environmental versatility)? Yes] "naturalized along roadsides and in open sites in mesic shrubland and grassland, 210-1,310 m" [Elevation range exceeds 1000 m, demonstrating environmental versatility]
204	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Native: Southern America Northern South America: French Guiana; Guyana; Suriname; Venezuela; Brazil: Brazil; Western South America: Bolivia; Colombia; Ecuador; Peru; Southern South America: Argentina; Paraguay; Uruguay"
205	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Does the species have a history of repeated introductions outside its natural range? No] No evidence
205	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Does the species have a history of repeated introductions outside its natural range? No] No evidence
301	1996. Whistler, W.A.. Botanical Survey of Diego Garcia Chagos Archipelago, British Indian Ocean Territory. Isle Botanica, Honolulu, HI	[Naturalized beyond native range? Possibly] Diego Garcia
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.	[Naturalized beyond native range? Yes] "in Hawaii, naturalized along roadsides and in open sites in mesic shrubland and grassland, 210-1310 m, on Hawaii. Primarily occurring in Hawaii Volcanoes National Park, where it was first collected in 1961 (Fosberg 42065, BISH); however, Degener and Degener (1983) report that it was first introduced on Oahu in 1932)."
301	2010. Snow, N.. Notes on grasses (Poaceae) in Hawai'i: 2. Bishop Museum Occasional Papers. 107: 46–60.	[Naturalized beyond native range? Yes] "To summarize the distributions in Hawai'i of the above three species and 2 others from the morphologically similar genus Schizachyrium: 1) Andropogon bicornis is known from Kaua'i; 2) Andropogon glomeratus var. pumilis is newly reported here for Midway, Oahu and Hawai'i but previously was reported incorrectly from Kaua'i; 3) Andropogon virginicus is known from Kaua'i, Oahu, Molokai, Maui, and Hawai'i; it was reported incorrectly from Midway and Lanai; 4) Schizachyrium condensatum was reported previously but incorrectly from Oahu (Herbst & Clayton 1998) but is confirmed from the Big Island (Lorence & Flynn 1995); and 5) Schizachyrium scoparium is known from Kaua'i, Oahu, and Maui."
302	2012. WRA Specialist. Personal Communication.	[Garden/amenity/disturbance weed? No] Environmental Weed
303	2012. WRA Specialist. Personal Communication.	[Agricultural/forestry/horticultural weed? No] Environmental Weed
304	1991. Aplet, G.H./Anderson, S.J./Stone, C.P.. Association between Feral Pig Disturbance and the Composition of Some Alien Plant Assemblages in Hawaii Volcanoes National Park. Vegetatio. 95(1): 55-62.	[Environmental weed? Yes] The ability to detect pig disturbance and small, inconspicuous plant species is hampered in the dense grass canopies created by Andropogon and Schizachyrium. This may contribute to the significantly negative associations between pig disturbance and some members of the Andropogon group."

304	1991. Hughes, F./Vitousek, P.M./Tunison, T.. Alien Grass Invasion and Fire In the Seasonal Submontane Zone of Hawai'i. Ecology. 72(2): 743-747.	[Environmental weed? Yes] "Invasion by Schizachyrium condensatum alone is apparently sufficient to initiate a cycle in which long lived, relatively diverse Metrosideros polymorpha woodland is converted to a grassland dominated by highly flammable Melinis minutiflora. Some native species, including the candidate endangered species Pittosporum terminalioides, may be driven to extinction as a consequence."
304	1993. Hughes, F./Vitousek, P.M.. Barriers to Shrub Reestablishment following Fire in the Seasonal Submontane Zone of Hawai'i. Oecologia. 93(4): 557-563.	[Environmental weed? Yes] "While light availability was certainly increased immediately following fire, here as elsewhere (Wilson and Shay 1990), it was significantly reduced by grass cover after one year of post-fire recovery. Light availabilities were 42% of incident radiation under shrub canopies, but were reduced to 10% under Schizachyrium dominated canopies in YB."
304	2001. D'Antonio, C.M./Hughes, R../Vitousek, P.M.. Factors Influencing Dynamics of Two Invasive C4 Grasses in Seasonally Dry Hawaiian Woodlands. Ecology. 82(1): 89-104.	[Environmental weed? Yes] "A review of fire effects in lowland and submontane habitats in HAVO suggests that fires in Melinis are worse for native species than fires where Melinis is absent (Tunison et al. 1993, 1995). Thus, keeping Melinis out of sites should be a management priority." … "Ultimately however, Schizachyrium, by promoting the spread of fire, indirectly promotes Melinis, which then persists in these sites for decades."
304	2003. Mack, M.C./D'Antonio, C.M.. The Effects of Exotic Grasses on Litter Decomposition in a Hawaiian Woodland: The Importance of Indirect Effects. Ecosystems. 6(8): 723-738.	[Environmental weed? Yes] "In this dry woodland, exotic grasses significantly altered decomposition processes through indirect effects on the quantity and quality of litter produced by native species." … In the comparison of W + G versus G for both years, S. condensatum stems decomposed faster than all litters (P = 0.05) except for D. viscosa leaves (Figure3). S. condensatum leaves, by contrast, decomposed very slowly in year 1 (Figure 3)."
304	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Environmental weed? Yes] "This fast growing grass send up new tillers each year from a small root crown. The grass is invasive because it promotes the spread of fires and displaces native vegetation with pure stands. Such stands accumulate large quantities of dead and flammable biomass, increasing fire frequency and intensity. The grass forms dense swards that crowd out native plant species and prevent their regeneration"
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? Possibily] Schistophyllidium bifurcum (?), Schizachyrium brevifolium, Schizachyrium microstachyum, Schizachyrium paniculatum, Schizachyrium sanguineum, Schizachyrium scoparium listed as naturalized or weeds, but evidence of impacts not found
401	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.	[Produces spines, thorns or burrs? No] "Perennial [grass]; culms tufted, erect, 9 15 dm tall, unbranched in lower part, repeatedly branching above into a compound inflorescence, internodes 2-3.5 mm in diameter, glabrous, broadly elliptic in cross section, filled with white or pinkish pith, nodes inconspicuous, glabrous. Sheaths keeled, glabrous, rarely sparsely puberulent; ligule a firm membrane, 0.7-2 mm long, adnate to sheath margins; blades up to 40 cm long, 3 8 mm wide, glabrous, lower surface keeled, occasionally with a few hairs at throat."
402	2001. D'Antonio, C.M./Hughes, R../Vitousek, P.M.. Factors Influencing Dynamics of Two Invasive C4 Grasses in Seasonally Dry Hawaiian Woodlands. Ecology. 82(1): 89-104.	[Allelopathic? No] "The persistence of many species in fire prone habitats is dependent upon their ability to resprout after fire. If Schizachyrium recruited only by seed, it would be rapidly outcompeted by Melinis and would become uncommon in burned sites. Instead, Melinis reduces Schizachyrium's growth by reducing light availability and competing for soil resources (Fig. 6). It is also possible that it reduces Schizachyrium's growth through allelopathy, but we know nothing about this for these species." [No evidence that Schizachyrium is allelopathic]
403	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.	[Parasitic? No] Poaceae
404	2011. D'Antonio,C.M./Hughes, R.F./Tunison, J.T.. Long-term impacts of invasive grasses and subsequent fire in seasonally dry Hawaiian woodlands. Ecological Applications. 21(5): 1617–1628.	[Unpalatable to grazing animals? Unpalatable to goats] "S. condensatum and Andropogon virginicus were described as the original grass invaders (Doty and Mueller-Dombois 1966, Smith and Tunison 1992) and are considered unpalatable to goats, while most of the woody species and M. minutiflora are considered palatable (Baker and Reeser 1972). Goats were removed in the early1970s. D'Antonio et al. (2001) demonstrated that M. minutiflora had the potential to dominate the woodland understory, but its invasion was slowed by the prior establishment of S. condensatum."
405	1992. Gillis, A.M.. Keeping Aliens out of Paradise. BioScience. 42(7): 482-485.	[Toxic to animals? No] "Melinis minutiflora, molasses grass from Africa; Andropogon virginicus, broom sedge from the prairies and southeastern United States; and Schizachyrium condensatum, also an American grass, can all bear intensive grazing. The Melinis is favored in parts of Hawaii as pasture grass." [No evidence]

405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No] No evidence
406	2006. Ansari, S.. WRA Specialist.	[Host for recognized pests and pathogens? No evidence] "The following fungi were listed to be associated with Schizachyrium condensatum: Phyllachora andropogonis: Venezuela - 5833 Puccinia kaernbachii: Bolivia - 5833 Puccinia posadensis: Argentina - 5833 ; Mexico - 5833 Sphacelotheca guaranitica: Argentina - 5833 ; Brazil - 5833 ; Venezuela - 5833 Sporisorium guaraniticum: Paraguay - 37633 [No evidence that the above are economic pests]." [Information provided in previous weed risk assessment, with no citation]
407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No] No evidence
408	2001. D'Antonio, C.M./Hughes, R../Vitousek, P.M.. Factors Influencing Dynamics of Two Invasive C4 Grasses in Seasonally Dry Hawaiian Woodlands. Ecology. 82(1): 89-104.	[Creates a fire hazard in natural ecosystems? Yes] "Abstract. The introduced C4 bunchgrass, Schizachyrium condensatum, is abundant in unburned, seasonally dry woodlands on the island of Hawaii, where it promotes the spread of fire. After fire, it is partially replaced by Melinis minutiflora, another invasive C4 grass. Seed bank surveys in unburned woodland showed that Melinis seed is present in locations without adult plants. Using a combination of germination tests and seedling outplant experiments, we tested the hypothesis that Melinis was unable to invade the unburned woodland because of nutrient and/or light limitation. We found that Melinis germination and seedling growth are depressed by the low light levels common under Schizachyrium in unburned woodland. Outplanted Melinis seedlings grew rapidly to flowering and persisted for several years in unburned woodland without nutrient additions, but only if Schizachyrium individuals were removed. Nutrients alone did not facilitate Melinis establishment. Competition between Melinis and Schizachyrium naturally occurs when individuals of both species emerge from the seed bank simultaneously, or when seedlings of one species emerge in sites already dominated by individuals of the other species. When both species are grown from seed, we found that Melinis consistently outcompetes Schizachyrium, regardless of light or nutrient treatments. When seeds of Melinis were added to pots with well-established Schizachyrium (and vice versa), Melinis eventually invaded and overgrew adult Schizachyrium under high, but not low, nutrients. By contrast, Schizachyrium could not invade established Melinis pots regardless of nutrient level. A field experiment demonstrated that Schizachyrium individuals are suppressed by Melinis in burned sites through competition for both light and nutrients. Overall, Melinis is a dominant competitor over Schizachyrium once it becomes established, whether in a pot or in the field. We believe that the dominance of Schizachyrium, rather than Melinis, in the unburned woodland is the result of asymmetric competition due to the prior establishment of Schizachyrium in these sites. If Schizachyrium were not present, the unburned woodland could support dense stands of Melinis. Fire disrupts the priority effect of Schizachyrium and allows the dominant competitor (Melinis) to enter the system where it eventually replaces Schizachyrium through resource competition."
408	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Creates a fire hazard in natural ecosystems? Yes] "This fast growing grass send up new tillers each year from a small root crown. The grass is invasive because it promotes the spread of fires and displaces native vegetation with pure stands. Such stands accumulate large quantities of dead and flammable biomass, increasing fire frequency and intensity. The grass forms dense swards that crowd out native plant species and prevent their regeneration"
409	2001. D'Antonio, C.M./Hughes, R../Vitousek, P.M.. Factors Influencing Dynamics of Two Invasive C4 Grasses in Seasonally Dry Hawaiian Woodlands. Ecology. 82(1): 89-104.	[Is a shade tolerant plant at some stage of its life cycle? No] "Reproduction was reduced by low light and increased by nutrients in both species. Shading eliminated flower production in Schizachyrium during the time course of this study. However, it is possible that shading simply delayed flowering and that we harvested before it had occurred." [Probably not - the grass seems to inhabit open areas - suggesting its lack of shade tolerance].
409	2008. Benitez, D.M./Belfield, T./Loh, R./Pratt, L./Christie, A.D.. Inventory of Vascular Plants of the Kahuku Addition, Hawaii Volcanoes National Park. Technical Report 157. Pacific Cooperative Studies Unit, Honolulu, HI	[Is a shade tolerant plant at some stage of its life cycle? Probably No] "It was also noted along roadsides and disturbed habitats along the central pastures, but was absent from shaded environments such as forest and the pit crater's interior."
410	2012. WRA Specialist. Personal Communication.	[Tolerates a wide range of soil conditions? Unknown] Probably yes, given invasiveness and distribution in Hawaiian Islands

411	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.	[Climbing or smothering growth habit? No] "Perennial [grass]; culms tufted, erect, 9 15 dm tall, unbranched in lower part, repeatedly branching above into a compound inflorescence, internodes 2-3.5 mm in diameter, glabrous, broadly elliptic in cross section, filled with white or pinkish pith, nodes inconspicuous, glabrous."
412	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Forms dense thickets? Yes] "This fast growing grass send up new tillers each year from a small root crown. The grass is invasive because it promotes the spread of fires and displaces native vegetation with pure stands. Such stands accumulate large quantities of dead and flammable biomass, increasing fire frequency and intensity. The grass forms dense swards that crowd out native plant species and prevent their regeneration"
501	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.	[Aquatic? No] "Perennial [grass]; culms tufted, erect, 9-15 dm tall…" [Terrestrial]
502	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.	[Grass? Yes] "Perennial [grass]; culms tufted, erect, 9 15 dm tall, unbranched in lower part, repeatedly branching above into a compound inflorescence, internodes 2-3.5 mm in diameter, glabrous, broadly elliptic in cross section, filled with white or pinkish pith, nodes inconspicuous, glabrous. Sheaths keeled, glabrous, rarely sparsely puberulent; ligule a firm membrane, 0.7-2 mm long, adnate to sheath margins; blades up to 40 cm long, 3 8 mm wide, glabrous, lower surface keeled, occasionally with a few hairs at throat. Inflorescences loose, composed of numerous solitary racemes subtended by spathes, 20 40 cm long, 3-8 cm wide, branched in upper part, peduncles 2.5-6 cm long, with up to 8 spikelet pairs, individual racemes on slender branches, spathes involute or flattened, somewhat concealing the lower spikelet pairs, 15-35 mm long, rachis internodes 4-6 mm long, widened upward, conspicuously ciliate on the edges, pedicels 3.6-5.5 mm long; sessile spikelets narrowly ovate, 4.5-5 mm long, callus blunt, minutely bearded, hidden by the hollow apex of the rachis internode, glumes subequal, as long as the spikelet, first glume slightly convex on the back, with 2 submarginal keels, apex slightly bidentate, second glume slightly shorter than first glume, 1-nerved, strongly keeled, the keel scabrous, first lemma 3.2-3.8 mm long, hyaline, ciliolate on the margins, apex acute, second lemma hyaline, apex deeply bifid, ciliolate, awned, the awn dark brown and strongly twisted below, the exserted portion above the bend straight or loosely twisted, ca. 10 mm long, palea absent; pedicellate spikelet sterile, usually 1-2 mm long, awn straight, up to 2 mm long. Caryopsis amber, linear-cylindrical, 2.5 2.8 mm long"
503	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.	[Nitrogen fixing woody plant? No] Poaceae
504	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.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Perennial [grass]; culms tufted, erect, 9-15 dm tall, unbranched in lower part, repeatedly branching above into a compound inflorescence, internodes 2-3.5 mm in diameter, glabrous, broadly elliptic in cross section, filled with white or pinkish pith, nodes inconspicuous, glabrous."
601	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	2001. D'Antonio, C.M./Hughes, R../Vitousek, P.M.. Factors Influencing Dynamics of Two Invasive C4 Grasses in Seasonally Dry Hawaiian Woodlands. Ecology. 82(1): 89-104.	[Produces viable seed? Yes] "Competition between Melinis and Schizachyrium naturally occurs when individuals of both species emerge from the seed bank simultaneously, or when seedlings of one species emerge in sites already dominated by individuals of the other species."
603	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	[Hybridizes naturally? Unknown] No evidence of hybrids reported
604	2007. Culley, T.M./Klooster, M.R.. The cleistogamous breeding system: A review of its frequency, evolution, and ecology in angiosperms. The Botanical Review. 73(1): 1-30.	[Self-compatible or apomictic? Possibly Yes] "Cleistogamy, a breeding system in which permanently closed, self-pollinated flowers are produced, has received increasing attention in recent years, but the last comprehensive review of this system was over 20 years ago." …"Within genera, cleistogamy was most commonly reported in Viola (Violaceae; 80 species), Stipa (Poaceae; 41), Dichanthelium (Poaceae; 19), Danthonia (Poaceae; 17), Schizachyrium (Poaceae; 17),…"

605	1994. Zomlefer, W.B.. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London	[Requires specialist pollinators? No] A grass species- probably wind pollinated, or self-pollinating
606	1991. Hughes, F./Vitousek, P.M./Tunison, T.. Alien Grass Invasion and Fire In the Seasonal Submontane Zone of Hawai'i. Ecology. 72(2): 743-747.	[Reproduction by vegetative fragmentation? No] "Moreover, unlike Schizachyrium, Melinis can spread vegetatively by rhizomes as well as by seed; it forms dense mats capable of overgrowing and smothering native species in vine-like fashion."
607	2006. Quattrocchi, U.. CRC World Dictionary of Grasses: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. Volume I. CRC Press, Boca Raton, FL	[Minimum generative time (years)? 1] "Annual or short-lived perennial…" [Potentially may flower within one year]
701	2006. Ansari, S.. WRA Specialist.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Probably Yes] A grass species that grows in disturbed areas such as along roadsides.
701	2008. Benitez, D.M./Belfield, T./Loh, R./Pratt, L./Christie, A.D.. Inventory of Vascular Plants of the Kahuku Addition, Hawaii Volcanoes National Park. Technical Report 157. Pacific Cooperative Studies Unit, Honolulu, HI	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "It was also noted along roadsides and disturbed habitats along the central pastures, but was absent from shaded environments such as forest and the pit crater's interior."
702	2012. WRA Specialist. Personal Communication.	[Propagules dispersed intentionally by people? Probably No] No evidence that the species has ornamental value or is used as forage.
703	2006. Ansari, S.. WRA Specialist.	[Propagules likely to disperse as a produce contaminant? Probably yes} small wind dispersed grass seeds.
704	2001. D'Antonio, C.M./Hughes, R../Vitousek, P.M.. Factors Influencing Dynamics of Two Invasive C4 Grasses in Seasonally Dry Hawaiian Woodlands. Ecology. 82(1): 89-104.	[Propagules adapted to wind dispersal? Yes] "...Schizachyrium has greater potential for rapid dispersal to new areas than does Melinis. Both species are wind dispersed, but Schizachyrium's seeds are attached to a large fluffy plume, whereas Melinis's have a soft unforked awn. By dropping seeds from a known height in the laboratory, we measured terminal velocity of Schizachyrium seeds as 0.6 m/s, while seeds of Melinis fell at 1.1 m/s. In addition, the mean height of release of Schizachyrium seeds in the field is 20 cm higher than that of Melinis (C. M. D'Antonio, unpublished data), contributing to greater dispersal for Schizachyrium."
705	2001. D'Antonio, C.M./Hughes, R../Vitousek, P.M.. Factors Influencing Dynamics of Two Invasive C4 Grasses in Seasonally Dry Hawaiian Woodlands. Ecology. 82(1): 89-104.	[Propagules water dispersed? No] "...Schizachyrium has greater potential for rapid dispersal to new areas than does Melinis. Both species are wind dispersed, but Schizachyrium's seeds are attached to a large fluffy plume…"
706	2012. WRA Specialist. Personal Communication.	[Propagules bird dispersed? No evidence] Adapted for wind dispersal
707	1992. D'Antonio, C.M./Vitousek, P.M.. Biological Invasions by Exotic Grasses, the Grass/Fire Cycle, and Global Change. Annual Review of Ecology and Systematics. 23: 63-87.	[Propagules dispersed by other animals (externally)? Possibly] "Two North American bunchgrass species, Andropogon virginicus and Schizachyrium condensatum are also common. Most of these grasses were introduced to support livestock; their spread may have been facilitated by the activity of feral goats which were also brought by early European colonists." [Plumes on seeds may adhere to fur]
708	1984. Janzen, D.H.. Dispersal of Small Seeds by Big Herbivores: Foliage is the Fruit. The American Naturalist. 123(3): 338-353.	[Propagules survive passage through the gut? Unknown] "Seed dispersal by livestock occurs among pastures and crop fields, as well as within these habitats, and is of sufficient quantity to be of concern when managing plant species and variety composition (it has even been suggested as a means of planting pastures" [Unknown if viable grass seeds are consumed or dispersed by livestock]
801	2006. Ansari, S.. WRA Specialist.	[Prolific seed production (>1000/m2)? Possibly] Possibly yes - a grass with relatively small seeds.
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] No information for S. condensatum, but other species in the genus possess orthodox seeds
803	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching,L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI http://www.ctahr.hawaii.edu/invweed/weedsHi.html	[Well controlled by herbicides? Yes] "Management: Sensitive to glyphosate. HAVO staff reported control with foliar application of glyphosate at 1% of product in water (Chris Zimmer, HAVO). In pastures, grazing management and cultural measures probably more promising."

804	1991. Hughes, F./Vitousek, P.M./Tunison, T.. Alien Grass Invasion and Fire In the Seasonal Submontane Zone of Hawai'i. Ecology. 72(2): 743-747.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Currently the three most prevalent alien grass species in the seasonal submontane zone are Melinis minutiflora, Andropogon virginicus, and Schizachyrium condensatum (formerly known as Andropogon glomeratus). All maintain extremely high dead: live biomass ratios (80-90%) throughout most of the year, and thus are capable of supplying the continuous bed of fine fuels needed to carry fire. They will also burn at very high relative humidities (85-90%) and high fuel moistures (20-25%). Finally, all three recover rapidly and grow with increased vigor following fire; Andropogon and Schizachyrium can resprout within 96 h after fire (T. Tunison, personal observation)."
804	2001. D'Antonio, C.M./Hughes, R../Vitousek, P.M.. Factors Influencing Dynamics of Two Invasive C4 Grasses in Seasonally Dry Hawaiian Woodlands. Ecology. 82(1): 89-104.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Adult Melinis plants clearly lack the ability to withstand fire: Melinis survival was 30% and 0% in our low- and high-intensity burns, respectively. By contrast, Schizachyrium condensatum tolerated even high intensity fires. In the low-intensity burn, 93.5% of Schizachyrium individuals regenerated within nine months, while in the high-intensity fire, 40% of Schizachyrium individuals regenerated."
805	1992. Gardner, D.E.. Plant Pathogens as Biocontrol Agents in Native Hawaiian Ecosystes. Pp. 432-451 in Stone et al. (eds.) Alien Plant Invasions in Native Ecosystems of Hawaii: Management & Research. oop. Nat. Park Res. Studies Unit, UH, Honolulu, HI	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? No] "As might be expected, conventional biological control would be usually most applicable in natural areas or other non agricultural situations in which weeds are widely scattered and difficult to locate or to approach for treatment on an individual basis. Even in natural areas, however, alien grasses and woody species may become established to the exclusion of other vegetation types in monoculture-like stands. The alien grasses Andropogon virginicus and Schizachyrium condensatum form such stands in Hawai`i Volcanoes National Park."
805	1992. Tunison, J.T.. Alien Plant Control Strategies in Hawaiii Volcanoes National Park. Pp485-505 in Stone et al. (eds.). Alien Plant Invasions in Native Ecosystems of Hawai`i: Management & Research. Coop. Nat. Park Res. Studies Unit, U Hawaii, Honolulu,	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? No] "Not controlled; targeted for biocontrol but permission to import biocontrol agents is problematical" [Widespread with no evidence that biological control agents are present in Hawaii]