Taeniatherum caput-medusae (Medusahead)		**Answer**	**Score**
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to FL climates (USDA hardiness zones; 0-low, 1-intermediate, 2-high).	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high).	2	
2.03	Broad climate suitability (environmental versatility).	y	1
2.04	Native or naturalized with mean annual precipitation of 40-70 inches.	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range.	y	2
3.02	Garden/amenity/disturbance weed	y	2
3.03	Weed of agriculture	y	4
3.04	Environmental weed	y	4
3.05	Congeneric weed	?	
4.01	Produces spines, thorns or burrs	y	1
4.02	Allelopathic	?	
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	y	1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens		
4.07	Causes allergies or is otherwise toxic to humans.	n	0
4.08	Creates a fire hazard in natural ecosystems	y	1
4.09	Is a shade tolerant plant at some stage of its life cycle		
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils).	n	0
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	y	1
5.01	Aquatic	n	0
5.02	Grass	y	1
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally	?	
6.04	Self-compatible or apomictic	y	1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	n	-1
6.07	Minimum generative time (years)	1	1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y	1
7.02	Propagules dispersed intentionally by people	n	-1
7.03	Propagules likely to disperse as a produce contaminant	?	
7.04	Propagules adapted to wind dispersal	y	1

7.05	Propagules water dispersed	y	1
7.06	Propagules bird dispersed	?	
7.07	Propagules dispersed by other animals (externally)	y	1
7.08	Propagules dispersed by other animals (internally)	y	1
8.01	Prolific seed production	y	1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	?	
8.03	Well controlled by herbicides	y	-1
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05	Effective natural enemies present in Florida, or east of the continental divide.	n	1
	Total Score	**27**	
	Implemented Pacific Second Screening	**No**	
	Risk Assessment Results	**Reject**	

	Reference	Source data
1.01		No evidence.
1.02		
1.03		
2.01	1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif). 2. The National Arbor Day Foundation 2006 Hardiness Zones Map, arborday.org. 3.a-b. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948. 4. USDA, NRCS. 2011. The PLANTS Database (http://plants.usda.gov, 10 March 2011). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. 5. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php.	**No computer analysis was performed**. 1. World hardiness zones: (3-?) 4-10. 2. USDA Hardiness zones: 3-8 (-9?) 3.a. Native distributional: Northern Africa, Asia Temperate, Asia Tropical, Europe; Naturalized distribution: Australia (south), United States (west). 3.b. CA, CO, HI, NV, OR, UT, WY. 4. Present in CA, CT, ID, MT, NV, NY, OR, PA, UT, WA. 5. Native to Spain, Portugal, southern France, Morocco, and Algeria.
2.02	Refer to all references in 2.01.	**No computer analysis was performed**. Native range is well known; refer to 2.01 source data.
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Refer to all references in question 2.01.	1. Distribution in the native and naturalized ranges is very widespread and occurs in more than 3 climatic groups. Also refer to source data in question 2.01.
2.04	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10].	1. It occurs in areas with annual precipitation of 10 to 40 inches (250-1,000 mm), with an upper limit of precipitation approximately 50 inches (1,270 mm).
2.05	1. USDA, NRCS. 2011. The PLANTS Database (http://plants.usda.gov, 10 March 2011). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 3. DiTomaso, J.M. et al. 2008. Control of Medusahead (*Taeniatherum caput-medudae*) using timely sheep grazing. *Invasive Plant Science and Management* . 1:241-247.	1. Present in CA, CT, ID, MT, NV, NY, OR, PA, UT, WA. 2.a. It was introduced to the United States in the late 1800s. 2.b. Reported in six counties in 1950 and has since spread rapidly throughout California. 2.c. It also infests rangeland, grassland, and sagebrush communities in Oregon, Washington, Idaho, Nevada, and Utah. 3. It spread rapidly north into Washington, south into California, and east into the Great Basin and other western states. It continues to expand its range by about 12% per year and recently was estimated to infest over 950,000 ha (2.4 million ac) in the 17 western states (Duncan and Clark 2005).

3.01	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948. 2. USDA, NRCS. 2011. The PLANTS Database (http://plants.usda.gov, 10 March 2011). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	1. Naturalized in Australia and United States. 2. Present in CA, CT, ID, MT, NV, NY, OR, PA, UT, WA.
3.02	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. It has invaded fields, dry roadsides, and disturbed sagebrush slopes in British Columbia, Washington, Idaho, Oregon, and California. 2. Disturbed sites.
3.03	1. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. Medusahead typically invades rangeland communities and agronomic fields. Dense stands often develop, lowering the livestock carrying capacity.
3.04	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011. 3. DiTomaso, J.M. et al. 2008. Control of Medusahead (*Taeniatherum caput-medudae*) using timely sheep grazing. *Invasive Plant Science and Management* . 1:241-247.	1. It has invaded seral communities in eastern Oregon and Idaho and replaced cheatgrass (another invasive non-native species) as the dominant alien grass. 2.a. Medusahead outcompetes native grasses and forbes. After seed set, the silica-rich plants persist as a dense litter layer that prevents germination and survival of native species, ties up nutrients, and contributes to fine danger in summer. Dense stands often develop, displacing desirable vegetation and wildlife. 2.b. Grassland, openings in chaparral, oak woodlands. 3. Medusahead is an aggressive species with the ability to change the structure and function of grassland ecosystems. It not only increases the fire frequency within an area, but can also lead to substantial litter accumulation that suppresses the establishment of native or other desirable species (Kyser et al. 2007).
3.05	1. Holm et al. *A Geographical Atlas of World Weeds* . New York: John Wiley & Sons, 1979. Print. 2. TNC Global Invasive Species Team. http://www.invasive.org/gist/global/australia/poa.html.	1. *T. asperum* is a common weed in the USA. 2. *T. asperum* present on USA Composite List of Weeds.

4.01	1. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 3. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 4. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf. 5. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. The awned seeds can cause injury to eyes, nose, and mouths of grazers (Rice 2005). 2. As the plant matures it develops long barbed awns that can cause injury to the eyes, noses, and mouths of grazing animals. 3. Sharp awns can injure the eyes and mouths of livestock. 4. Livestock are often injured by its awns and seeds. 5. The stiff awns and hard florets can injure eyes and mouths of grazing animals.
4.02	1. Marin County Parks and Open Space. *Our Work: Invasive Plant Management* . http://www.maringov.org/en/Depts/PK/Our%20Work/OS%20Main%20Projects/IPM.aspx. Accessed: March 16, 2011.	1. Has an allelopathic effect on other seedlings, delaying their development, and allowing the fast growing roots of medusa-head to monopolize water resources.
4.03		No evidence.

4.04	1.a-c. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2.a-c. Archer, A.J. 2001. T*aeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 3. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 4. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf. 5. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1.a. Horton (1991) proposed that the high silica level deterred grazing. 1.b. Grazing values diminish rapidly as the plants mature (Furbush 1953), and is due in part to the awned seeds. 1.c. The awned seeds can cause injury to eyes, nose, and mouths of grazers (Rice 2005). 2.a. Medusahead is a major concern to the range livestock industry because it can suppress desirable vegetation and is unpalatable to livestock. 2.b. As the plant matures it develops long barbed awns that can cause injury to the eyes, noses, and mouths of grazing animals. Medusahead has little to no feed value to livestock at any stage of growth. 2.c. Some researchers conclude that the annual grass is unpalatable at all times, while others determine it may be "reasonably palatable" in early vegetative stages with rapid decline in palatability as it matures. 3. Because of its high silica content, medusahead is unpalatable to livestock and native wildlife except early in the growing season; the sharp awns can injure the eyes and mouths of livestock. 4. Although a few reports indicate that medusahead is palatable in early spring before maturity (Lusk et al. 1961), most grazing animals rarely eat it unless under forced or fertilized grazing conditions. Livestock are often injured by its awns and seeds. 5. Relative to other forage species, medusahead contains much silica, making it harsh and unpalatable to livestock except during the early growth stages. The stiff awns and hard florets can injure eyes and mouths of grazing animals.
4.05		No evidence.
4.06		
4.07		No evidence.
4.08	1. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 3. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php.	1. It is a fire-adapted species; medusahead biomass is high in silica, degrades slowly, and is highly flammable. 2. Medusahead has a fine structure and its herbage dries completely; therefore, its standing dead biomass is extremely flammable. The hazard of wildfire is further increased by considerable litter. Medusahead litter decomposes more slowly than that of most plants, therefore making stands of this annual grass a fire hazard. It promotes further frequent fire by increasing fuel loads. 3. Contributes to fire danger in summer.
4.09		

4.10	1.a-b. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf. 3. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. Medusahead often dominates disturbed areas on soils with high moisture-holding capacities and slow percolation rates. Sites particularly susceptible to medusahead invasion in the more arid portions of Idaho are either those with well-developed soil profiles, particularly with high clay content either at or near the surface; or those occupying topographic positions that receive additional run-off from adjacent sites. 1.b. In a northwestern California site soil is fine sandy loam 2 to 3.3 feet (0.6-1.0 m) deep with rapid surface drainage. 2. Well-drained soils and coarse-textured sands with poorly developed profiles are less likely to be utilized by *T. caput-medusae* . 3. Certain soil types have shown to favor medusahead establishment including heavy clays or soils with well developed subsurface clay horizons. Low lying areas that receive additional moisture by overland flow or subsurface later moisture flow may also favor medusahead.
4.11		
4.12	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 3. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf.	1. Medusahead often grows in dense stands on disturbed sites where climax perennial grasses have been removed, often to the exclusion of other species. 2. Once established, *T. caput-medusae* can reach densities of 1,000-2,000 plants per square meter. 3. Plant density after establishment may range from 500 plants per square foot on scablands to 2000 plants per square foot on valley bottom soils (Sharp et al. 1957).
5.01		
5.02	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948.	Family: *Poaceae* (alt. *Gramineae*)
5.03	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948.	Family: *Poaceae* (alt. *Gramineae*)
5.04	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948.	Family: *Poaceae* (alt. *Gramineae*)

6.01		
6.02	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 3. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. Medusahead is entirely dependent upon seed production for regeneration. 2. The grass reproduces by seed. 3. Reproduces by seed.
6.03	1. Frederiken, S. 1994. Hybridization between *Taeniatherum caput-medusae* and *Triticum aestivum* (*Poaceae*). *Nordic Journal of Botany,* 14(1): 3-6.	No evidence was found of natural hybridizaton. 1. Successful production of a hybrid between *Triticum aestivum* L. and *Taeniatherum caput-medusae* (L.) Nevski. has occurred. As part of an intergeneric hybridization programme including *Taeniatherum caput-medusae* , a single combination with *Triticum aestivum* as pollen donor resulted in two plantlets, one of which survived to flowering (HH 3027).
6.04	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php.	1. Medusahead is principally self fertile. 2. Medusahead is predominantly self-pollinanting.
6.05	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php.	1. Medusahead is principally self fertile. 2. Medusahead is predominantly self-pollinanting.
6.06		

6.07	1. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10].	1. *T. caput-medusae* is a winter annual. 2. Medusahead is a cool-season annual.
7.01	1. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 3. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. Vehicles should be cleaned of adhering seed after driving. 2. Seeds can disperse by attaching to machinery and vehicles. 3. Seeds disperse to greater distances with soil movement and human activities.
7.02		
7.03	1. DiTomaso, J.M. et al. 2008. Control of Medusahead (*Taeniatherum caput-medudae*) using timely sheep grazing. *Invasive Plant Science and Management* . 1:241-247.	1. First introduced to Oregon as a seed containment around 1887 (George 1994, Young 1992).
7.04	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 3. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf. 4. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. Wind disperse the seeds and spread is rapid. 2. Dispersed locally by wind. 3. Local dispersal from established patches is by wind (Furbish 1953). 4. Seeds disperse locally with wind.

7.05	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 3. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf. 4. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. Water disperse the seeds and spread is rapid. 2. Dispersed locally by water. 3. Local dispersal from established patches is by water (Furbish 1953). 4. Seeds disperse locally with water.
7.06	1. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf. 2. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. The seeds are least preferred by wild birds (Goebel and Berry 1976). 2. Seed-eating birds usually avoid feeding on the seeds.

7.07	1. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 3. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 4. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf. 5. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1.a. Livestock should not be moved from infested pastures to fields free of medusahead. 1.b. Clothing, camp gear, and pets should be cleaned of adhering seed after camping and walking in medusahead-infested areas. 2. Animals disperse the seed and spread is rapid. A long, rough awn aids in animal dispersal of seed primarily from the coats of grazing animals. 3. The long-awned seeds cling to the coats of grazing animals, such as sheep or cattle, and also clothing. 4. Long distance dispersal is primarily by travel in coats of livestock, especially sheep. 5. Seeds disperse to greater distances by clinging to the feet and fur of animals.
7.08	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10].	1. Seeds are dispersed from the intestinal tracts of grazing animals. Germinable seeds have been recovered in fecal material 4 to 9 days after ingestion by rabbits and domestic sheep, respectively.

8.01	1. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 3. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 4. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1. Twenty or more seeds are produced per seed head (Clausnitzer 1996). 2. It is an extremely capable seeder because of its large annual production of viable seed; plants produce up to 6,000 seeds/ft^2 of soil, propagating dense stands in succeeding years. 3. Produces large amounts of seed. 4. Seed production is prolific.
8.02	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10]. 2. Marin County Parks and Open Space. *Our Work: Invasive Plant Management* . http://www.maringov.org/en/Depts/PK/Our%20Work/OS%20Main%20Projects/IPM.aspx. Accessed: March 16, 2011.	1. Medusahead maintains a short-lived seedbank. 2. Medusahead has a two year seed bank.

8.03	1.a-b. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php. 3. Maurer, T. et al. 1988. Element Stewardship Adstract for *Taeniatherum caput-medusae* . Online. http://www.imapinvasives.org/GIST/ESA/esapages/documnts/taencap.pdf. 4. California Department of Food and Agriculture. *Encycloweedia: Data Sheets* . Online. http://www.cdfa.ca.gov/phpps/ipc/weedinfo/taeniatherum-caput-medusae.htm. Accessed: 3/15/2011.	1.a. Several herbicides provide excellent control of medusahead. 1.b. Foliar active compounds (e.g. glyphosate) can be very effective if good coverage is obtained and soil active compounds (e.g. atrazine and metribuzin) can also be effective. Aminopyralid and imazapic are two relatively new compounds on the market that provide foliar control and several months of soil activity. 2. Small-scale infestations can be controlled by chemical herbicides. Atrazine applied in fall at 2 lbs/ac was effective in controlling medusahead. 3. Fall applications of 1.12 kg/ha of the herbicide Atrazine have been used to control medusahead in ponderosa pine woodlands (Christensen et al. 1974). 4. Atrazine is a selective herbicide used for annual grass control and has effectively controlled medusahead and cheatgrass with at 1.12 kg ha-1.
8.04	1. Archer, A.J. 2001. *Taeniatherum caput-medusae* . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, March 10].	1. Immature plants may be only top-killed by early-season fire, and regenerate by tillering.
8.05	1. Stannard, M.E. et al. 2010. Plant guide for medusahead (*Taeniatherum caput-medusae*). USDA-Natural Resources Conservation Service, Plant Materials Center, Pullman, WA. 2. Cal-IPC: Invasive Plants of California's Wildland. http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=80&surveynumber=182.php.	1. There are currently no biological control agents developed for this species. Two smut diseases and a crown rot have been investigated but do not appear to be viable tools (Miller et al 1999, Coombs et al 2005). 2. No insect or fungal control agents are known; however, some preliminary research has been done on the effect of dry soil conditions on infestations of crown rot (*Fusarium culmoron*).